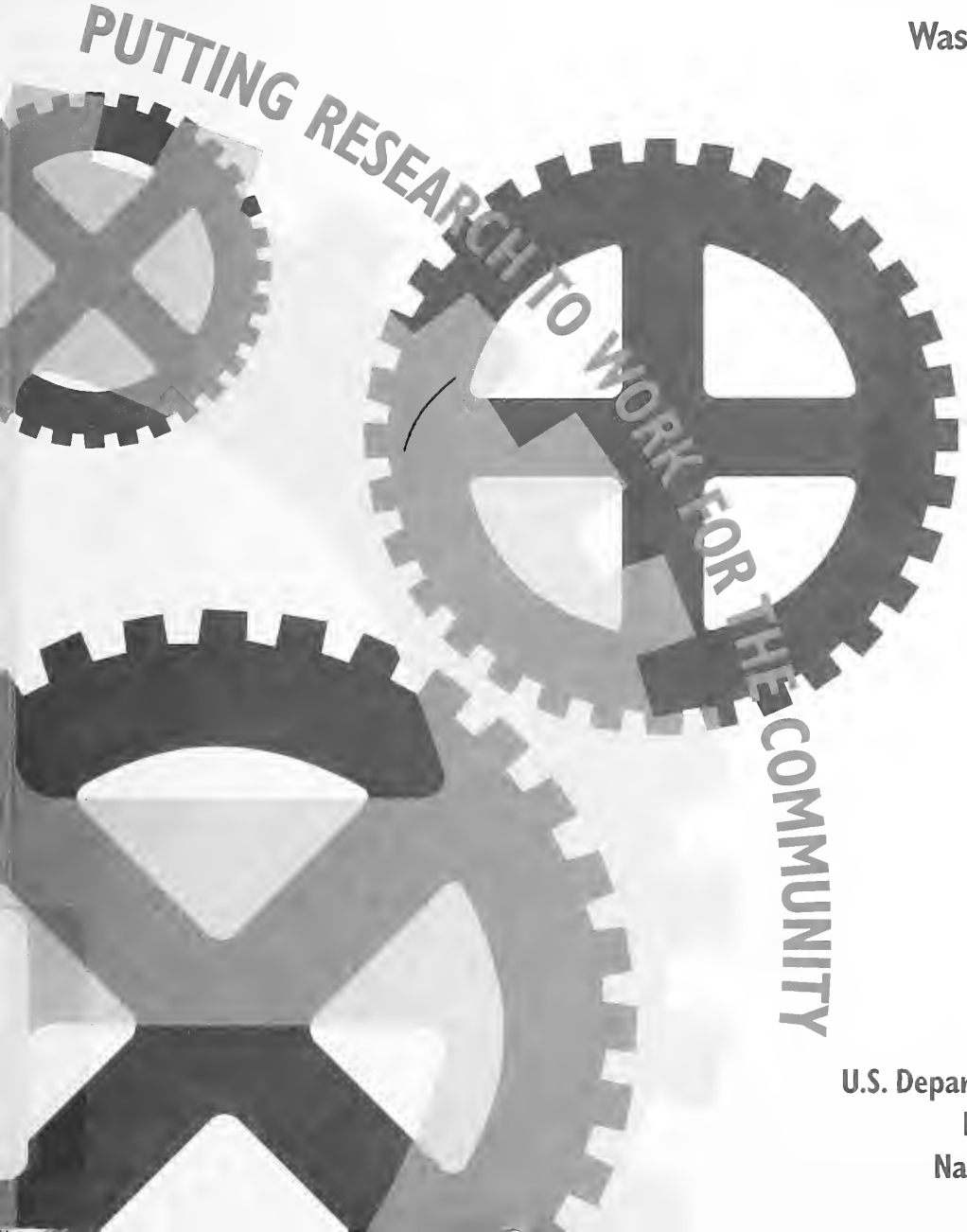
National Conference on DrugAbuse Prevention Research:

Presentations, Papers, and Recommendations

September 19-20, 1996
Marriott at Metro Center
Washington, DC



U.S. Department of Health and Human Services
National Institutes of Health
National Institute on Drug Abuse

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Sponsored by:

U.S. Department of Health and Human Services
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In Collaboration With:

Center for Substance Abuse Prevention

Community Anti-Drug Coalitions of America

National Prevention Network

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PREFACE

Alan I. Leshner, Ph.D.
Director
National Institute on Drug Abuse

For the past 20 years, the National Institute on Drug Abuse has supported extensive research into the design and testing of theory-based drug abuse prevention interventions that have the potential for effectively addressing one of America's most serious public health problems—drug abuse and addiction. At the "National Conference on Drug Abuse Prevention Research: Putting Research to Work for the Community," we had the extraordinary opportunity for research and community practitioners to work together to review the research; explore its ramifications for individuals, families, and communities; and develop recommendations for future collaborations and applications of this knowledge in settings across the country.

At the conference, we were privileged to hear keynote addresses by Donna E. Shalala, Ph.D., Secretary of Health and Human Services, and General Barry R. McCaffrey, Director of the Office of National Drug Control Policy. During plenary sessions, five senior scientists from research institutions across the country presented an overview of the risk and protective factors that lead to or deter drug use and abuse and described the most effective components of successful prevention programs. They highlighted specific approaches to implementing drug abuse prevention programs in schools, communities, and families. Each scientist expanded on these presentations to produce comprehensive papers for this volume. Subsequent to the conference, two additional research papers on reaching at-risk youth and on family-based prevention were commissioned to provide additional examples of successful prevention interventions. To begin building the bridge between research and practice, the conference included a series of workshops that provided an open forum for the interchange between the panel presenters and conference participants. These workshops, led by a panel of researchers, National Prevention Network representatives from States, and prominent community practitioners, provided opportunities to share perspectives and expertise.

As we all know, research knowledge must be applied if it is to have an impact on the drug problem. To do that, we need to energize the community of concerned and caring parents, community leaders, educators, and governmental officials to demand that scientific knowledge be incorporated into new and established programs at the community level. This conference was the first step to help link prevention science to community action. Since then, NIDA has published a series of publications on prevention research to assist local communities. NIDA published "Preventing Drug Use Among Children and Adolescents: A Research-Based Guide," a booklet that provides a short summary of research and resources and references where more information can be obtained. NIDA also published a series of "Drug Abuse Prevention Publications and Resource Manuals," which describe some of the latest research, provide a process for determining community readiness for prevention, and then instruct on how to conduct the intervention. Later this year, NIDA will publish a new Research Monograph that summarizes the design, progress, and outcomes of prevention intervention studies that focus on the family. It is our hope that this conference report will provide a valuable resource as you commit your energy and enthusiasm to addressing this important public health problem.

CONTENTS

[1] As of this printing, Dr. Kumpfer is director of the Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration, DHHS.

[2] At this printing, Mr. Copple is director of Coalition, State, and Field Services, National Crime Prevention Council.

OPENING PLENARY SESSION

Welcome and Introductory Remarks

Alan I. Leshner, Ph.D.
Director
National Institute on Drug Abuse

I am pleased to welcome all of you to what I hope will prove to be a landmark meeting and event, bringing together people from all sectors of our society to face the problem of drug abuse. I am particularly pleased to be able to welcome you on behalf of our cosponsor, the Robert Wood Johnson Foundation, and on behalf of our collaborators, the Center for Substance Abuse Prevention, the Community Anti-Drug Coalitions of America, and the National Prevention Network, as well as a long list of cooperating organizations.

I think the breadth and the diversity of the groups and the individuals represented here speak not only to the importance of the problem, but to our Nation's commitment to actually doing something about it. We are here today on behalf of millions of American youth who are at risk of having their lives ravaged by drugs. Our task today is straightforward: to come together as Federal, State, and community leaders to discuss and to decide how best to bring the full power of science to bear on preventing the devastation of our youth.

I am particularly pleased today that we have two of America's most important leaders with us to set us on our course: Donna E. Shalala, the Secretary of Health and Human Services (HHS), and General Barry R. McCaffrey, the Director of the President's Office of National Drug Control Policy.

I now would like to introduce to you Secretary Donna Shalala, who was the first woman to head a "Big 10" university, the University of Wisconsin at Madison, where she nourished not only great research, but also a Rose Bowl-winning football team. She was the president of Hunter College, at that time the youngest person ever to be a college president, and is a great and lifelong leader for the children of our country.

Keynote Address

Donna E. Shalala, Ph.D.
Secretary
U.S. Department of Health and Human Services

I am honored to join all of you today. Behind the research, behind the science, and behind the statistics, the work that you do every day is really about saving lives, preserving families, and building stronger communities for the future of our country.

That future begins and ends with our young people, including the young people General McCaffrey and I spoke about several weeks ago when we released the results of the 1995 National Household Survey on Drug Abuse, which was conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA). The Household Survey showed that the increase in drug use among youth that began with eighth graders in 1991 continued to climb last year.

I know that all of you join me and General McCaffrey in calling on every American to join forces to reverse this trend once and for all. As our children go back to school this month, full of hope and promise for the future, now is the time for us to make sure that drugs do not stand in their way.

But this is not the time to point fingers. We must not allow this issue to become a political football because that could send the wrong message to our children. It will make them think that drugs are an issue just for the politicians rather than something for which they have to take personal responsibility. Drugs are not a Republican or Democratic problem. They are a bipartisan problem and an American problem. Our problem. They present a challenge for all of us, a challenge that demands real leadership. And that is exactly what President Clinton has provided to the American people with the most comprehensive antidrug strategy to ever come out of 1600 Pennsylvania Avenue. The President's plan attacks the supply side of the problem with tough law enforcement and interdiction. It hits at demand with resources for treatment, education, and prevention, and it includes a strong commitment to drug abuse research. I am proud to serve with a President who understands the vital role that your work plays in our fight against drugs, and I am proud of the strides being made every day at the National Institute on Drug Abuse (NIDA).

Thanks to some of the world's best scientists, we have made very big gains in understanding the unique dangers posed by individual drugs and in finding new solutions to combat them. Now that NIDA scientists have found a way to immunize animals against the psychostimulant effects of cocaine, we are one step closer to finding a treatment for cocaine addiction. As part of the Marijuana Use Prevention Initiative I launched in 1994, NIDA-sponsored research continues to illuminate the dangers of marijuana. Researchers like Dr. Billy Martin have demonstrated that marijuana is addictive, and researchers like Dr. Peter Fried have shown that marijuana use during pregnancy can have dangerous long-term effects on children.

In the face of rising marijuana use among our young people, these breakthroughs in scientific knowledge do more than shed light. They have the potential to save lives. We need to educate a generation of parents, doctors, police officers, teachers and everyone else who cares about children that marijuana is a dangerous drug. Let me be clear: We need to make the scientific case, lay out the facts, and tell all Americans exactly why marijuana is hazardous to our health, to our

heart, lungs, brain, and motor skills, and ultimately to our future.

But there's another critical role for research as well. We need to hold our education and prevention efforts to the very highest standards of rigorous scientific evaluation. We need more information about what works and what doesn't, and we need to bring that knowledge to every home, school, and community in America.

Over the next 2 days, you will hear more about a number of key research findings that will help illuminate how we can save our children from the scourge of drugs. Let me touch on three of the most important findings.

First, I am pleased to see that research done by Dr. Gilbert Botvin of Cornell University and others is showing the value of school-based prevention programs. From years of research we know that schools often give us the best chance of reaching the children who are most at risk for substance abuse, including children with behavioral problems or learning disabilities. This research confirms the wisdom of President Clinton's fight to save the Safe and Drug-Free Schools program, a powerful resource, and one with bipartisan roots, that serves about 40 million schoolchildren in 97 percent of America's school districts. Last year, the President used his veto pen to protect this critical initiative from massive congressional cuts. This year the Congress has proposed big cuts again, and once again we must lay down our marker and say, "No." We must make it clear that now is not the time to roll back our commitment to protect children from drugs in their schools. Now is the time to strengthen that commitment by extending a hand to parents and children to help them win this fight.

That is why I am proud to announce today a new partnership between HHS, NIDA, and *Scholastic News* magazine to bring even more drug education right into America's classrooms. In November, more than 73,000 third- through sixth-grade teachers will receive new materials designed to educate 2.3 million students about the dangers of inhalants, marijuana, and tobacco. But that is not all. Our program includes a take-home component that lets parents know what their children learned in school that day and asks them to reinforce that strong antidrug message around the dinner table.

That brings me to my second finding. Dr. Thomas Dishion of the Oregon Social Learning Center will present research showing that parents and families are powerful forces for preventing youth drug use. Our challenge is to put power in parents' hands and to inspire them to talk early, often, and candidly with their children about drugs. What works is parents talking to their children about drugs and at every opportunity reinforcing the core message that drugs are illegal, dangerous, and wrong. That has never been more important than right now.

In a recent survey of teens and parents conducted for the Center on Addiction and Substance Abuse, 65 percent of parents who used marijuana in their youth have resigned themselves to the belief that their own children will try drugs. Forty percent of these parents believe they can do little to prevent this tragedy, but that is as far from the truth as Moscow is from Maine. The fact is that children trust their parents more than any other people in the world. We have to make sure parents know this and act to protect their children.

For this reason we are teaming up with leaders such as the National Parent Teacher Association (PTA) to conduct a new "Reality Check" campaign that has already given a free publication to 1 million parents to help them send strong no-drug-use messages to their children, even if the parents experimented with drugs in the past. We do not want parents to wait until their children have been exposed to drugs on the playground or at a friend's house. They need to start early, which is the third key finding that I want to amplify today.

From research by Dr. Dishion and others, it has been shown that it is particularly beneficial for young children, especially those at risk, to hear clear and consistent no-drug-use messages early and often throughout their preadolescent years. Think about some of the earliest messages kids receive from parents and other adults, the time-honored ones: "Do not touch that hot stove." "Look both ways before crossing the street." "Do not talk to strangers." We never forget them, and more important, we pass them on to our children. Make no mistake about it. Our children

would fare much better as teenagers and adults if that repertoire of traditional messages also included repeated warnings to stay away from drugs. In fact, survey data from the Partnership for a Drug-Free America shows that children tend to have strong antidrug attitudes up until age 12. But those attitudes begin to erode just before the teen years as kids start to receive an assault of pro-drug-use messages from popular culture and other sources.

Let us look at the facts. In 1991, drug use among eighth graders jumped, signaling the beginning of the trend among all teens that we are still experiencing today. If we are going to move in the other direction and reduce the numbers, the place to make progress first is with the youngest group—eighth graders—by increasing their disapproval of drugs and increasing their perception that drugs are harmful. But we cannot wait until they hit the eighth grade to do that. To lower our eighth graders' drug use rates, we must start earlier, bolstering their initial antidrug attitudes and sustaining them beyond age 12 so that they do not soften their disapproval of drugs as they grow into their teens.

That is the challenge I want to bring to you today. So, how do we do that? How do we influence our young adolescents? What kind of messages are persuasive to children ages 8 to 12? Who are their role models? Who do they trust most? How do we compete and win against the barrage of pro-use messages? We need science-based guidance to answer these seemingly simple questions because the answers to them are complex. We need to take the science and these answers and translate them into action by using them anywhere that they can help us win the battle for the hearts, minds, and futures of our children.

We cannot stand still in this fight because, as we stand at the doorway to the 21st century, somewhere in America there is a 10-year-old girl who, if she stays off drugs, could become the CEO of a Fortune 100 company. There is a 14-year-old boy who learned to say no in grammar school who now dreams of becoming the next American astronaut to walk on another planet. And there is the 18-year-old girl who learned to resist drugs in sixth grade and now can set her sights on any job she wants, from the future principal of her high school to the future President of the United States.

These young people are our national hope and our national resource. With the vast promise of science and research, we can reach them better and earlier and in doing so reverse these drug trends and paint a brighter future for this generation and every generation to come. By working together, we will do just that. Thank you.

Keynote Address

General Barry R. McCaffrey
Director
Office of National Drug Control Policy
Executive Office of the President

Let me thank Secretary Shalala for including me in today's activities, and certainly Dr. Alan Leshner, the NIDA Director. I embarrass him frequently because I boast about his leadership and his example, along with others, including Nelba Chavez, Elaine Johnson, David Mactas, the people in the Justice Department, and the people in the Department of Education, who provide me with background information on those aspects of the drug challenge that I need in order to seriously address policy options in this arena.

One of Dr. Leshner's slogans is one that I have adopted: "By the turn of the century we are going to replace ideology with science." The bottom line is that I know far more definitive information about North Korean nuclear weapons than I do about heroin addiction, who is taking heroin, why they are doing it, and what treatment methodologies work. That is a disgrace, and that is why this conference is so enormously important to all of us.

Let me briefly salute people like Dr. Robert Pandina at Rutgers University, Dr. Gilbert Botvin at Cornell University, Dr. Mary Ann Pentz at the University of Southern California, Dr. Thomas Dishion at the Oregon Social Learning Center, and Dr. William Hansen at Tanglewood Research, and those of you who came here from all over the country. You are very busy people who have come to share your thinking about what is, unarguably in my own judgment, the key issue in the national drug strategy: the prevention of drug abuse. Many of you have devoted your entire adult lives to trying to understand and deal with the problem of substance abuse in America.

What the National Drug Strategy represents is what our President put forth to the American people a few months ago in Miami. We wanted to emphasize a comprehensive approach to addressing substance abuse in America rather than just picking one variable and addressing that.

I think cancer may be akin to the type of problem you and I are facing with substance abuse. First of all, substance abuse, like cancer, is a fairly common challenge that most families have faced. You have to do pain management, and you have to get to the root cause. You take 5-year survival rates and talk about the dignity of the individual. You take a holistic approach.

The President faced the American people and said that our drug abuse strategy has to be a long-term engagement. It is not a military campaign but rather a very complex social, medical, legal, and law enforcement issue. It will be solved not by Washington, but by parents, school teachers, ministers, coaches, and community coalitions, and, it is hoped, with the very direct involvement of the research community. This involvement has been the missing factor.

You and I learned in Philosophy 101 that you do not argue about facts. They either are facts or they are not facts. You have to start with a set of common assumptions to have any kind of serious discussion of policy alternatives. These assumptions are part of our challenge. We are still arguing about the facts. A lot of our data are soft and inadequate. If you are a serious scholar in the field, you understand the limitations of your own data. On the other hand, there is a lot that is

known, and certainly there is a mountain of anecdotal information to buttress many of the arguments you make, particularly in the field of drug prevention.

We have to move forward in some systematic fashion so that we end up with conclusions based on scientific analysis that are subject to peer group review and can be reproduced by other investigators. That is where we need to go, and we need researchers to help us. One of the many joys of this job is to be able to talk to members of the research community, hear what you are doing, and learn about your conclusions as they emerge.

The National Drug Strategy has five goals. Any cunning bureaucrat in Washington learns early on that you do not tell people what your priorities are. If you have 10 priorities, those people who hear they made priority number 4 or number 8 are enraged and want to know why they cannot be number 3 or number 7. So we do not have multiple priorities in the National Drug Strategy—we have only one. Absolutely without question, the single priority is to motivate American youth to reject substance abuse.

We understand, both on an intuitive level and from experience in studies, that if American kids can get from sixth grade to age 20 without smoking cigarettes, abusing alcohol, or using illegal drugs, they are "home free," statistically speaking, and will not suffer addiction problems for the remainder of their lives.

You and I essentially are concerned about only two facts. The first fact is that when people use illegal drugs or abuse alcohol, they experience intense pleasure. I think we have been inadequate in telling young people up front that this is why people use drugs. There is a pleasure-seeking dimension to it. The second fact is that drugs cause you to act like a jerk, and we have not made that point. We have not said that heroin abuse also gives you enormous nausea, makes your skin crawl, constipates you, and diminishes your sex drive. Now, that is the "good" news about heroin use. The bad news is that, as with most addictive substances, you develop drug dependency and tolerance, and your life becomes one of unending misery from trying to satisfy this addiction.

And this second dimension is a tough one because, as you know better than I, once you are addicted, the challenge is to effectively treat the addiction.

Along with this challenge is the relapsing nature of the disorder and the way we provide treatment. Our limited therapeutic tools are a big problem. Getting folks unhooked from the rewired neurochemical brain processes of drug addiction is a tough challenge at best, but we think it is doable and certainly worth the money. It is a no-brainer for a taxpayer to want to invest in drug treatment, but treatment itself is difficult.

So drug use prevention for the 68 million kids 18 years and younger is what we are going to focus on. It is the spearhead of the whole effort.

Secretary Shalala already mentioned one of our challenges: we have stopped talking to kids about drugs. You and I know heroin is an enormous risk. Eighty-five percent of us will say that, but 50 percent of 12- to 17-year-olds say they fear heroin experimentation. We have not been talking to the children.

The news media stopped focusing on it. The school systems backed off, saying they felt inadequately equipped, and they were not sure it was an appropriate role for them. And the ministers, where are the ministers? We simply have to send a consistent prevention message appropriate for each age group to children from kindergarten through the 12th grade. If we do, then more adolescents and children will not be exposed to these drugs and become at risk of addiction.

We have to remind ourselves that drug use is not inevitable: 80 percent of our children have never touched an illegal drug. But we do have a problem, and we have to get moving. We have to get organized. We also are going to have to listen, and I think the renewed election year debate about drug use is probably a very helpful thing. In the flurry of body blows, the American people and the news media inevitably will come to balanced, correct conclusions.

We have a 1997 budget before Congress now, and we need help. We need to get the budget of

$15.1 billion and the $250 million supplemental funding request passed by Congress. Most of that money is for law enforcement and prisons, and that is okay. Drugs are wrong, and you have to uphold the law. We must have law enforcement authorities address the issue because if we do not, prevention, education, and treatment messages will not work very well. But having said that, I also believe that we have created an American gulag. We have 1.6 million people behind bars, and probably two-thirds of those in the Federal system are there for drug-related crimes.

We are having a difficult time making an adequate case to responsible men and women in Congress, State legislatures, and city councils that drug prevention works. I need your help. You need to make the case, and you need to talk to your Government representatives at the State, local, and Federal levels. You need to back up what you have intuitively learned throughout your professional careers—that drug prevention is the absolute centerpiece of a sensible national drug strategy.

Let me also ask you to do several additional things. It seems to me you have to speak to the news media more frequently. Come forward and help us make the case. We have a debate right now—Proposition 215 in California is simply outrageous, and Proposition 200 in Arizona is incredible. It is unclear what those two propositions will do. But what Secretary Shalala, law enforcement officers, and I do know is that it is bad science and bad medicine. It also will expose children in California and Arizona to widespread use of another psychoactive substance [marijuana], which we believe, along with cigarette smoking and alcohol abuse, is absolutely a gateway behavior that sets kids up to lose in life. We have to do something about it.

Who is in the debate? The people who ought to speak to the issue are the professionals who understand it, and that includes you, the medical community, treatment community, and prevention community, along with parents, educators, and others who have responsibility for children. We simply have to stand up in that debate.

I would like to suggest a final note of optimism that has been lacking in this entire issue. I commonly have people clap me on the back and say what a brave lad I am to sign up to work on a problem that seems impossible to break out of. Am I not industrious for agreeing to take on this whole challenge? I told the President there are only two things that I bring to the table that are unique. One overwhelming credential I bring to the table is that I was confirmable by the Senate. But the second one is a sense of optimism. I have three grown kids who married people who are like them. They are drug-free and they are responsible, hard-working youngsters, like most of America. The overwhelming majority of Americans do not use illegal drugs and do not have substance abuse problems. Our problem is that many Americans do.

I watched the U.S. Armed Forces go through this issue in the 1970s. It was a nightmare. If you were in uniform between 1971 and 1981, [you know that] the impact of substance abuse on our professionalism, discipline, and spiritual strengths was beyond belief. About one-third of the Armed Forces were using drugs all the time, and maybe another third would use them when they could get their hands on them. I do not know which was worst: marijuana, Quaaludes, or alcohol. They were all mixed in there and had a destructive effect on our physical and moral ability to defend America. We worked our way out of it, and contrary to what many people believe, we did not do it through punishment. We did it because we had an advantage over civilian institutions, called sergeants. These sergeants were men and women ages 25 to 35, who cared about the 19-year-olds under their control. They set standards and articulated a work atmosphere of dignity, caring, and monitorship. I might add it took us nearly 10 years to get out of it, and drug testing was a key component of that effort. Drug testing is a tool that is not necessarily available in American society. We prize our liberty and our right to privacy, so we cannot assume that we can go about this problem as Singapore does or as the U.S. Marine Corps does.

But the youngsters in the Armed Forces are the same beautiful people that are here in the streets of Washington and in your community, and they respond to the same motivations. I would suggest that we take a long-term approach and encourage a sense of partnership. You have the most important task of all—drug education and prevention. You have to tutor us and the American

people, using information from scientific inquiry, about what works and what does not work. You can assume that Secretary Shalala, Secretary Riley, and I will take the results of your work and be your public servants.

From the Prevention Research Lab to the Community

Alan I. Leshner, Ph.D.
Director
National Institute on Drug Abuse

I have been in the Government for 17 years, and I have to tell you that in those 17 years I have never met two people who bring to the most complex problem facing us the kind of clarity of thinking, focused action, and courage that Secretary Shalala and General McCaffrey do. I salute both of you, and I thank you for leading us all.

I also want to take a moment to acknowledge our very important central collaborator in the *Scholastic News* magazine project that Secretary Shalala mentioned. Rick Delano, the director for the Youth Health Initiative at *Scholastic News*, is in our audience. He pointed out to me earlier today that it was about a year ago that we first started talking about holding a conference on prevention research. He actually posed it as a challenge back then when he said to me, "So you think you have such good science? Do it." Well, we are doing it.

My job is to try to set a broad context for this conference and, as much as I can, to lay some of the groundwork and spell out some of the generalizations that we have derived from prevention science over the years. Many of these generalizations may appear superficially to be commonsensible, but they are not. The problem is that science is the process by which common sense gets revised; that is to say, today's truth or common sense may not be tomorrow's common sense.

Those of you who work with children know this as well as anyone. Children are born a blank slate, and we have learned much about the ability of infants to acquire knowledge and their immediate perceptive and learning abilities.

We all need to keep in mind that drug abuse and addiction are among the top one or two issues facing this country and our society. The reason is that drug abuse and addiction affect everybody, either directly or indirectly: every family, every community, and all parts of society.

About 70 million adult Americans have used drugs at some time in their lives, and therefore they think they are experts on what to do about drug problems. It is a bit like the problem experienced by educators; everybody went to school so everybody feels free to tell their teachers how to teach. How many people in this room have not done that?

I am probably the only NIH Institute Director who goes to a cocktail party and the first 12 people who come up to me tell me how to fix the drug problem. The head of the National Cancer Institute does not have that conversation. The head of the National Heart, Lung, and Blood Institute might be told not to eat the high-cholesterol roast beef, but other than that, people are not giving him the same type of advice.

The problem is that we as a society, and frankly, many in the professional community as well, have tremendous ideologies, that is, tremendous beliefs and intuitions about the nature of drug abuse and addiction and what to do about it. The good news is that we also have scientific data that we can bring to bear on the problem. We need to talk about the data, and we need to figure out how to actually accomplish our goal.

When I first became the NIDA Director I went to visit the Partnership for a Drug-Free America, and I was struck by the Partnership's slogan:

"Drug abuse is a preventable behavior. Drug addiction is a treatable disease." That slogan captures both the simplicity and the sophistication of what 20 years of science has taught us, and I want to spend some time talking about both sides of that.

I am going to start on the treatable disease side. Whenever we think and talk about drug use or the phenomenon of addiction—and you will notice that I never pretend they are the same word—I think it is important to understand the full complexity of the issue that we are dealing with.

Let me start with some simple points. Whether or not a group of people will use drugs is a function of a large variety of factors called risk factors. However, when you look at what we call the proximal cause, that is, the reason a person takes a drug at a particular point in time, we find that he or she takes that drug not because of a risk factor, but to modify his or her sense of well-being. They are taking that drug to modify their mood, their perception, and sometimes their motor skills. And what they are doing, in fact, is modifying their brains.

The truth is that people take drugs to modify their brains, and they like modifying their brains with drugs. Positron emission tomography (PET) scans, from work by Nora Volkov and her colleagues at the Brookhaven National Laboratory, graphically demonstrate the phrase, "This is your brain on drugs." What her scans show is the uptake of radioactive cocaine over time into the base of the brain. People take cocaine because of that; they love the concentration of cocaine in that part of their brain. And we have a sophisticated level of understanding about why they love it. What they are doing actually is pushing up the dopamine levels in that part of the brain. PET scan studies on rats given cocaine show spikes in dopamine, the neurotransmitter involved in Parkinson's disease and involved in most pleasurable experiences. When a rat takes the cocaine, there is a dopamine surge. We believe the major reason that rats take cocaine is to obtain that dopamine surge. It is true for nicotine, and it is true for marijuana, amphetamines, and heroin. They all lead to an increase in dopamine.

The problem with taking drugs to modify the brain is that people who take drugs have succeeded too well, and prolonged drug use modifies their brains in fundamental and long-lasting ways. PET scans show that there is a relatively permanent change in the brain that lasts at least 100 days after an individual has stopped taking cocaine. The question most of you are asking at this moment is, "Does it return to normal?" The answer to the question is, "I don't know." One of the sad things about science is that we often obtain half of the answer to a question and do not get the rest. We are working on the rest of the answer.

Addiction is, in fact, a condition of changed brains. That is, you take drugs in order to change your brain. Sadly, you become too good at it, and over time it produces long-lasting, and in many, many cases, dramatically harmful effects on your brain. Addiction is a condition of changed brains, and I will tell you that it would be a lot easier if that was all it was. I could say, "It is just a brain disease." I could find a magic bullet. But I have to tell you, there will be no magic bullet. Those of you who are expecting a magic bullet—forget it. This is the most complex problem we have ever found, and we will have to find complex solutions.

We know that addiction is not just a condition of changed brains. It is also a result of a variety of factors that become embedded in the addiction itself. In this case I would refer you back to the concept of people, places, and things. The truth is that the circumstances that accompany the development of an addiction become what we in psychology call "conditioned." These circumstances become a conditioned part of the addiction, and they are able to elicit phenomenal cravings. The cues around drug use, not just the drugs, can elicit tremendous cravings.

Work from the University of Pennsylvania measured the level of craving experienced by a cocaine addict. They compared levels of craving in response to neutral stimuli, like a nature video, with the level of the craving elicited by exposure to cocaine stimuli, such as the paraphernalia used for crack cocaine. No actual drugs were involved. Researchers found that exposure to the cocaine stimuli alone elicited phenomenal craving. This is why people in the treatment community know that you cannot just complete an

inpatient treatment experience and dump the patient back in the community. You need to have aftercare that deals with the embedded social cues that occur.

PET scans show what I call the memory of drugs, or the activation of the part of the brain called the amygdala. The amygdala is a part of your brain, not surprisingly, related to all emotional experiences, and particularly the memory of emotional experiences. The scans show the activation of the amygdala in response to the cocaine video compared with the nature video. They show the quintessential biobehavioral disorder. That is to say, this is the epitome of biology and behavior coming together. We understand much of the brain mechanisms, and we understand the effects of the social and behavioral context and the behavioral expression. The PET scans tells us about the complexity of addiction and they tell us about its solutions. And there are solutions. Addiction has to be seen as a condition of changed brains and trained or conditioned brains.

The task of drug addiction treatment becomes changing the brain back to normal. You can do it in a variety of ways, including pharmacologically in some cases, although we basically have medications only for heroin addiction and nicotine addiction. We have no medications for cocaine addiction, but we are working on it.

However, we do have a wide range of impressive treatment approaches. Drug addiction is treatable. A few weeks ago at the American Psychological Association, Dr. Marcia Lenehan from the University of Washington articulated the goals of treatment: enhancing the individual's capabilities, improving motivation, and assuring generalization to the natural environment. There are at least three approaches to accomplishing each of those goals that have been proven effective through clinical trials. This is science being brought to bear on the problem of addiction.

We have data to show that you can accomplish each of those goals, but we have a tremendous gulf between what we have learned from science and incorporating these approaches in some treatment settings. More and more treatment settings are being exposed to these scientific findings and are modifying their treatment approaches. But the fundamental point is that addiction is treatable, and we have a wide array of tools in the toolbox with which we can accomplish that goal.

But we are here today to discuss drug use as a preventable behavior. The big question is, how do you go about preventing drug use? The truth is that a tremendous amount of ideology exists in our communities, among our professionals, and, to be candid, among some of our scientists as well. It is one of the most frustrating problems that I have. We have people who do not understand that prevention can be science based. It is like any other phenomenon. There are two tasks: to design and test new prevention approaches, and to test the efficacy of existing approaches. Both of these tasks are scientific goals and are achievable goals.

So what is this science base that we are here to talk about? Primarily, you need to understand that prevention, although it is very complex, is fundamentally a process of education and of behavior change. Much of the science base that should and can be used in the development of drug use prevention approaches comes from the science of behavior change. It comes from the study of epidemiology, patterns of drug use, histories of use, and risk and protective factors. As I am fond of saying, prevention should be experimental epidemiology and experimental behavior change. We should take what we learn from basic science and translate it into prevention science, and we should take prevention science and translate it into practice. And that is what we are trying to do.

Science has taught us a lot. We have had at least 20 years of scientific research on the principles of drug use prevention, and we have learned a tremendous amount. Our colleagues and you who are the users of prevention science will work together to put details on the generalizations that I will discuss. What is sophisticated here is understanding how to move from generalities to specifics and understanding how to do some things and not do other things.

Let us start with some understanding of risk factors for drug abuse. Science has identified more than 70 risk factors for drug abuse, and they are very powerful. However, they are not equally powerful, and I am not going to go through all

of them in detail. They operate at multiple levels: the individual level, the family level, the peer group level, and the community level. Those 70 risk factors are the same risk factors for everything bad that can happen to somebody.

I am a public health official and a parent. The truth is that if I could modify any of those bad things through a prevention program, I would be pretty happy. But my job is to deal with the issues of drug abuse per se, and therefore we have to select the most powerful risk factors and the most powerful interactions among these complex behaviors. We also need to understand that the level of risk, that is, the variation in level and the form of risk, must dictate the form and the intensity of the prevention effort. The one-size-fits-all approach never works. Anybody who thinks a single approach is going to work for everybody is naive.

Not only is it true that the higher the level of risk, the more intensive the prevention effort must be, but also the earlier we need to begin those efforts. Another critical point and fundamental principle is that prevention programs must be age specific. That is, you cannot speak to young children in the same way you speak to older children. You cannot speak to younger teenagers in the same way you speak to older adolescents. It is a tough lesson to learn, but science has taught us this over and over again. The advertising industry figured this out 30 years ago. Where have we been? All of our programs must be age appropriate and age specific, and they must also be culturally appropriate. They must speak to the people to whom they are directed and not only to the people who are doing the speaking.

It also is true that just dealing with risk factors is not going to be sufficient. A heartening fact is that most of the children considered to be at highest risk do not use drugs. Why is that? What circumstances prevent drug use among the most high-risk kids, and are there insights to be derived from understanding why this occurs? This could be useful in the prevention arena.

We have come to believe, on the basis of research that you will hear throughout this conference, that the best prevention approaches take into consideration both risk factors and protective and resiliency factors, and they overlay protective or prevention factors onto an understanding of the risk factors. We have been trying to figure out the best way to conceptualize this. The truth is that you also need to, as we say in science, titrate one or the other as one varies. As risk factors vary, you need to modify the protective factor approach, and as you change the protective factor approach, of course, you often will reach different groups of people.

Let me give you an example. Science has taught us that one of the most powerful protective factors is family involvement in the life of the child. You will notice that I did not say family involvement just in the child's drug use. There is an important difference. It is not very effective for daddy to come home from a hard day's work, walk in the house, say, "Hi. I am home. Do not use drugs." This is not going to work. What is needed, and what we have come to understand, is that family involvement in the life of the child is a powerful protective factor. There is a technical term I actually do not like very much, "parental monitoring," but the concept is important. Parents need to be involved in their children's lives and ask them questions such as "Where are you? What are you doing? Who are your friends? How are you? What are your problems? Do not use drugs. What else is going on? Did you do your homework? We love you." This involvement has to be part of a constellation of interactions.

To the point of titrating risk and protective factors, we know that approaches to strengthening the family must be changed and adapted as we move to more and more high-risk situations. In the most high-risk situations, concentrating on the family alone is not going to be sufficient. You need to adjust or titrate the relationship between risk and protection.

Another point is that prevention programming has to match the nature of the problem in the local community. This is another area in which one size does not fit all. It will never happen. One of the things NIDA has slowly begun to do is more systematic, local epidemiologic research. We need to match the programming to the particular situation in the community.

We need to focus on drug use and not just individual and specific drugs. Sometimes we need

to address a specific drug. For example, we are all concerned about the use of methamphetamine beginning to rise. Our Institute is mounting a major methamphetamine initiative. Other parts of the Government also have mounted methamphetamine initiatives to do a preemptive strike on the increases that seem to be occurring in methamphetamine use. But prevention programming in general must deal with drug use and not just individual drugs.

I am a basic scientist by background, and I worked for many years at the laboratory bench and at the National Science Foundation. My wife is the head of child welfare services in Montgomery County, Maryland. One night she told me about case management, and I was really intrigued. Then I thought for a few minutes and said, "What do you mean? How could you not case-manage?" This is sort of a truism. The problem is you have to move from that truism to how do you "do" case management. And it is not just "doing" case management because that does not mean anything. Do you do it assertively or passively? Do you do it with one person or with a team? Do you do it this way, or do you do it that way? That is what science teaches us in detail. The same is true with comprehensive drug abuse prevention strategies.

The obverse of this is true too; simple strategies do not work. You need to have a comprehensive strategy with multiple goals to be accomplished simultaneously. You will hear today about norm-setting, alternative activities, and an entire constellation of activities, and you will have an opportunity to discuss the implications of trying to conduct more comprehensive programs.

Next, we need to have comprehensive approaches that involve the entire community. Families, schools, whole communities, and the media need to work together. I believe that one of the most effective things to happen in this country is the development of local antidrug coalitions, and not just because they are talking together. It is because they are getting their acts together. They all are working in correlated, integrated ways and, we hope, are singing the same song, because another lesson from prevention science is that we need to get our messages straight. We all need to give the same messages, and that is very difficult. Because of different viewpoints about ideologies, common sense, intuition, and a number of issues, this is actually one of the most complex tasks. How do we get people to say the same thing over and over again, and say it in simple, understandable terms? The messages that we convey and the content of the messages are critical. Those messages have to be credible and based on scientific facts.

I offer you the auspices of NIDA to help provide those scientific facts. However, we may not abuse the data because when we do, we lose our credibility. Hyperbole is useless. Children are not stupid, and they understand when you exaggerate. We need to give them realistic, science-based information. "Drugs are not good for you." You do not have to exaggerate.

Long-term prevention programs have a more long-lasting impact on the groups most at risk for drug abuse. That means that longer is better, which seems obvious but it is not. I have been teasing Gil Botvin about the principle "boosters are better," because that is what some people hear when they learn about programs that give booster sessions over time. Let me tell you, it does not just mean the more exposure, the better. It means that one-shot programs and single exposures often do not work. But most people want a one-shot program. They have a sports hero talk to sixth graders and say, "I did drugs. It was bad, and it ruined my life. Do not do it." Then they think they have taken care of drug prevention and want to move on to the next thing. It is not going to work. We need prolonged intervention, and we need to understand that the only way to accomplish this is through message repetition and emphasis, and through booster sessions.

All of this, I hope, tells you that tremendous progress has been made in drug abuse science. We have learned a tremendous amount, but what I have told you is only part of the answers. The truth is that we do not have all the answers, and part of what we need from you today are the questions. We have brought people together not just to *hear* about drug abuse science but to *talk* about drug abuse science. We have to find out what people on the front line need to know to improve their programs and to make their efforts more effective. We have the power of science that we can bring to bear on improving prevention programs.

We need ways to move from the generalizations that I have been giving you to specifics. You will all receive a copy of a draft booklet that we are preparing. We hope it will educate you a little, but we want get your reactions to it as well. We are shaping a publication that we hope will reflect the outcomes of drug abuse prevention science and will provide some guiding principles and ways to implement those principles. It is stamped "draft" for a reason. We want you to tell us what in this document works and what does not work for you so that we can fix it.[1] We have done it before, and we will do it again. We need to move from generalities to specifics. We need to find the best ways to put prevention science to work in our communities.

I agree with General McCaffrey. We can get a handle on this country's drug abuse and addiction problem. I see it as the most complex problem facing our society, and I believe that we need to develop complex strategies that acknowledge these problems. To do so, as General McCaffrey said, science has to replace ideology as the foundation for what we do. We have to acknowledge that the science exists. We have to pay attention to it, and we may have to change the way we do some things because this is an interactive process.

Science learns in many ways, and the informing of science involves a two-way communication process. Scientists learn from people's experiences. We certainly learn the nature of the questions to be answered from people's experiences, and we have to base our research agenda on your experiences.

We challenge you to give us the guidance of your experience, not in generalities but in specifics. Please use some of the time that we have today to work together to help us set our research agenda.

To get a handle on this problem, we are going to have to work together: the scientific community, prevention community, public community, and society at large. All of us in American society have to have a common commitment to preventing drug abuse, and we have to do it in systematic rather than ideological ways. I hope that this conference provides the kind of forum where that can be accomplished. If it does not, you need to tell us that it does not. We have brought together a very diverse group of scientists, practitioners, and the lay community, and I hope that this conference becomes, in fact, a forum for communication.

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[1] The draft booklet has since been modified, published, and disseminated as *Preventing Drug Use Among Children and Adolescents: A Research-Based Guide*, NIH Publication No. 97-4212, March 1997.

PLENARY SESSION

Risk and Protective Factor Models in Adolescent Drug Use: Putting Them to Work for Prevention

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Introduction

The importance of applying findings from risk factor research in the public health prevention sphere became apparent as a result of the success of the groundbreaking and landmark Framingham Heart Study launched in the 1960s (Kannel and Schatzkin, 1983). That extensive program sought to aid understanding of what led some people to be more likely than others to suffer cardiovascular disease and to apply that understanding in the design of programs aimed at reducing susceptibility to various forms of cardiovascular disease. During the same timeframe, researchers in the mental health field also demonstrated the importance of factors that appeared to protect certain at-risk individuals from the development of predicted poor or negative outcomes. Those individuals were considered to be resistant or "resilient" (Rutter 1985; Garmezy and Masten 1994, pp. 191-208; Compas et al. 1995, pp. 265-293).

Risk factors are defined as ". . . those characteristics, variables, or hazards that, if present for a given individual, make it more likely that this individual, rather than someone selected at random from the general population, will develop a disorder" (Mrazek and Haggerty 1994, p. 127). Protective factors are those that, if present, make it less likely that such a disorder will develop. Resilience is based in the idea that some individuals who are exposed to risk factors (and hence should be more likely to develop a disorder) do not experience the disorder. Therefore, these otherwise susceptible individuals appear to be resistant to the effects of risk exposure; that is, they are resilient. Some investigators suggest that such resilience results from factors that buffer the at-risk individual from the adverse effects of exposure (Anthony and Cohler 1987).

Risk and protective factors encompass several meanings or levels of explanations ranging from simple statistical associations with a disorder (for example, heart disease, mental dysfunctions, drug dependence), to a predisposition for development of (or resistance to) the disorder, to the actual mechanisms responsible for causing or preventing a disorder. Hence, risk and protective factors can be markers (surface indicators), modifiers (augmenting or amplifying influences), or mediators (primary "causal" mechanisms) of drug use susceptibility and related outcomes and phenomena.

These categories of factors represent varying levels of scientific certainty or specificity about the nature of the influence that a given factor can have in directly producing a risk or protective effect on a particular drug use outcome or status. For example, knowing that an individual is a child of an alcoholic provides a surface indication (a marker) that a person is at heightened risk for negative alcohol use outcomes (for example, abuse and dependence). However, that marker designation does not specify how the risk is generated. For example, the risk could be generated through genetic loading resulting in increased

receptor sensitivity to alcohol. Or the risk could be through a child's exposure to parental drinking models in the home environment. In this example, "familial history" can act as a marker, modifier, or mechanism. In fact, one of the important scientific challenges in the drug abuse field is sorting out the nature and strength of associations between factors known to be related to use statuses and outcomes and the manner in which factors exert their influence (Rothman 1986; Baron and Kenny 1986; Rogosch et al. 1990).

Risk and Protective Factors in Substance Abuse Research

Concepts related to risk and protective factors have been useful and effective in the design of programs to identify, characterize, and intervene in a number of serious health problems, including cardiovascular disease, cancer, and now drug abuse. Serious efforts at extending risk factor models to the drug abuse arena began in the early 1980s.

Bry and colleagues (Bry 1983; Bry and Krinsley 1990; Bry et al. 1982, 1988, p. 301) were among the first to demonstrate the importance and applicability of risk factor models in predicting drug use susceptibility. Their work was extended and refined by the work of Newcomb and colleagues (Newcomb 1995, pp. 7-37; Newcomb and Felix-Ortiz 1992; Scheier and Newcomb 1991; Newcomb et al. 1986). Among the important findings of these researchers was that the number of risk factors appears directly related to intensity of drug use, stage in drug use, likelihood of escalation to more serious forms of drug use, risk of negative consequences, and other fundamental drug use phenomena. Hence, it appeared that by identifying individuals with higher levels of exposure to greater numbers of risk factors, it was possible to identify susceptible individuals. Research to date seems to support these general conclusions irrespective of age, gender, or ethnic considerations (see, for example, Brook, Cohen, et al. 1992, pp. 359-389; Brook, Hamburg, et al. 1992; Brook, Whiteman, et al. 1992; Brook et al. 1994; Brook et al., in press).

Work by Newcomb illustrates the core principle of increasing the risk for use intensity (a basic drug use marker) for tobacco, alcohol, and cocaine. As the number of risk factors rises, the likelihood of heavier use increases. The rise in risk occurs in relationship to the number of factors, irrespective of their nature. In other words, different patterns of factors can lead to the same level of risk. A similar result has been demonstrated for protective factors; that is, the larger the number of protective factors, the less likely the individual is to engage in intensive drug use. Specific combinations of factors seem to be less important than total number of factors.

In early work, risk factors were drawn from a limited range of biological, psychological and behavioral, and social and environmental variables thought to be related to drug use. More recent efforts (for example, Newcomb 1995; Pandina et al. 1992; Hancock 1996) have dramatically increased the range of risk factors to be included and have begun an assessment of the interplay between risk and protective factors and their relative contribution to important variations in drug use patterns and outcomes. A number of other key concepts emerge consistently across a wide range of studies and relate to the general manner in which risk and protective factors behave in regulating drug abuse susceptibility.

The following summarizes the general characteristics of risk and protective factors:

- They are cumulative or synergistic.
- They differ qualitatively and quantitatively.
- They vary in importance across individuals or groups.
- They vary in influence at different times during the life cycle.
- They vary in significance for the emergence of drug use stages and outcomes.
- They are subject to change and can be significantly reduced or induced.

The central concept is that risk and protective factors are cumulative in impact. Thus, the greater the number of risk factors, the higher the susceptibility. Conversely, the accumulation of protective factors appears to reduce risk. How risk and protective factors act to balance each other is yet to be determined. There is some

preliminary information (Hancock 1996) that risk and protective factors may behave somewhat differently in influencing susceptibility. For example, protective factors appear to be more important for more long-term use patterns and cumulative outcomes, while risk factors are more important for short-term, more immediate use patterns and outcomes.

While some risk and protective factors appear to be at opposite ends of the same continuum (that is, high vs. low self-efficacy), therefore displaying an apparently simple bipolar factor structure, other constructs may operate only as risk or protective factors. Even those constructs that appear more straightforward (such as self-efficacy), may operate in different ways as risk or protective factors. Current research programs continue to enhance our understanding of the quantitative and qualitative characteristics of risk and protection (Labouvie et al. 1991; Scheier and Newcomb 1991; Newcomb and Felix-Ortiz 1992; Newcomb 1995).

No single factor from any domain—biological, behavioral, or environmental—appears to be clearly and consistently identified as the single key factor, either risk or protective, that regulates risk susceptibility. Varying factor patterns may be more influential for some individuals or groups displaying similar characteristics. In a similar vein, some clusters of factors may be more influential in producing or limiting susceptibility for different developmental phases of the life cycle. Further, various stages and phases in the continuum of drug use behaviors and outcomes may be influenced differentially by distinctive factor constellations. Thus, factors significant for earlier stages of use initiation (such as "trying" marijuana) may differ qualitatively and quantitatively from those related to the transition to dependence (for example, heroin addiction or alcoholism). However, research to date indicates that many of these risk factors, singly and in combination, are related also to other dysfunctional outcomes, such as delinquency, violence, or serious mental disorders. In fact, it is not uncommon for drug-abusing individuals to have overlapping problems (cf. Compas et al. 1995).

Most significantly, research has demonstrated that many factors, though not necessarily all, can and do change across time in many individuals. Thus, the fact that many risk and protective factors appear to be malleable suggests that these are sensitive to natural events and may be influenced by extraordinary events such as prevention interventions. It is this last important consideration that forms the basis of many of the prototypic prevention programs described by the prevention scientists in this volume and other publications (Botvin et al. 1995; Brook et al. 1989; Dishion et al., in press; Eggert et al. 1990; Kumpfer et al. 1996; Donaldson et al. 1994; Hawkins et al. 1992; Pentz et al. 1989).

The results of the work on the earliest models raised the possibility of developing a practical approach to identifying at-risk individuals (or populations of individuals at risk). The research also suggested that through inspection of the risk profiles, it might be possible to develop intervention programs aimed at decreasing levels of risk associated with drug use in much the same manner as those earlier programs aimed at cardiovascular disease. The most recent research continues to support those earliest findings and emphasizes the relationship, albeit complex, between risk and protective profiles, drug use phenomena, and prevention approaches (Tobler 1992).

Furthermore, the most recent work linking risk and protective factors to drug use phenomena suggests a higher level of complexity than the initial risk factor models anticipated. Yet, the basic principles of the models have been retained. The earliest models strongly suggested the appropriateness of linking prevention efforts to our understanding of the way risk and protective factors operated to influence susceptibility to drug use. The more refined models emphasize the need to base prevention programs on an understanding of risk and protective factors, including how they operate in different individuals at various stages in the life cycle, differential effects on drug use staging, and the extent to which they may be modified by specific intervention approaches.

The research community is actively investigating a series of fundamental issues that, when resolved, could have major significance for prevention efforts. These include the relative importance of differential factor profiles for use onset and progression to more serious stages and problematic outcomes; the differential impact of factors operating at varying life cycle phases (for example, childhood, adolescence, young adulthood, mature adulthood) (Kandel et al. 1992; Jessor 1993); and the degree to which factors (including genetic mechanisms) are sensitive to modification.

Use-Behavior Continuum

The types of use behaviors and related outcomes that drug abuse researchers are concerned with when attempting to determine degree of risk and protection, particularly for young people, form the ultimate targets for prevention science programming. Characterization and estimation of harm potential is a difficult and complex task. In fact, such determinations represent an important research effort in itself (Gable 1993). The scaling of "harm" blends together such concepts as risks resulting from the chemical composition of the substances; damage potential to biological targets; mechanisms of action, potency, toxicity, nature, and extent of consequences; and other such parameters. Consideration must be given also to balancing exposure rates, use levels, and outcomes for various substances. Shifts in the ranking may be argued on the basis of weight given to specific factors in the harm-potential algorithm. Programs for youth are aimed primarily at blocking, reducing, or limiting involvement or intensity of drug use.

The range of use outcomes, statuses, and conditions that prevention programs attempt to induce, prevent, or eliminate is summarized as follows:

- Non-use
- Use
- Misuse
- Abuse/abuser
- Problem use/user
- Dependence/dependent user
- Addiction/addict
- Recovery/recovering addict
- First- and second-degree diseases.

The listing represents a rough qualitative continuum ranging from less to more problematic outcomes, which can be obtained for all substances (Clayton 1992). The majority of youth programs focus on earlier phases of the continuum targeting induction of non-use, delay of use initiation, and elimination of use, misuse, and abuse. This is not to say that viable prevention programs should ignore other outcomes or statuses; some effective campaigns focus on limited yet well-specified behaviors, such as driving under the influence. However, many of the more serious conditions, such as addiction, are often remote targets of youth-oriented programs.

Terms such as "use," "abuse," and "addiction," are global descriptors meant to capture quantitative and qualitative dimensions of the use-behavior spectrum. Use behaviors and states possess dynamic qualities that involve processes underlying various developmental sequencing of stages ("acquisition" or "maintenance") and within stage phases ("experimentation" or "dependence") of the use spectrum.

The following schema identifies fundamental developmental stages and their sequences:

I. Acquisition
   - Priming
   - Initiation
   - Experimentation

II. Maintenance
   - Habit formation
   - Dependence
   - Obsessive-compulsive use

III. Control
   - Problem awareness
   - Interruption/suspension
   - Cessation.

The stages, phases, and sequencing are applicable to substances typically targeted in youth-oriented prevention programs. Many of these programs focus on the acquisition and early maintenance features of the developmental use cycle.

While virtually all substances share similar developmental features, there are developmental features to sequencing of exposure to different substance classes. Kandel and colleagues (Kandel 1975, 1980; Yamaguchi and Kandel 1984; Kandel et al. 1992) were among the first

to demonstrate sequential ordering of substance use onset. For example, onset of alcohol and cigarette use precedes onset of marijuana use, which in turn precedes initiation of other illicit drug use. One consequence of these developmental aspects is that risk of exposure to various drugs is likely to occur over a relatively lengthy timespan ranging from early adolescence through early adulthood.

Note that progression across substance classes is not inevitable. However, when it does occur, progression appears to occur in a stepwise fashion for many users. Entrance to a particular stage or phase of use and initiation of a particular substance does not mean that an individual cannot "regress" to an earlier stage within a particular drug class or to an earlier position in the sequence between substance classes (Labouvie et al., in press).

The target use behaviors forming the focus for prevention scientists are somewhat more complex than they might appear. Many youth-oriented prevention programs focus on a particular location in the "environmental space" of the substance-use spectrum bounded by the earliest phases of use development (such as priming and initiation), primary "position" in the substance-class spectrum (such as alcohol and tobacco), and more global qualitative states (such as use or abuse). Even within these limits, the targets for intervention are relatively complex.

Classes of Risk and Protective Factors

Risk and protective factors can be arranged in three domains or classes, which, in turn, can be divided into relevant subclasses as follows:

I. Biological
   - Genetic
   - Constitutional

II. Psychological and Behavioral
   - Internal processes
   - Behavioral action profiles and repertoire
   - Interpersonal interactional styles

III. Social and Environmental
   - Familial interactions
   - Peer interactions
   - Institutional interactions
   - Social/institutional structures.

Biological factors can be characterized as genetic (related to a profile of inherited or gene-transcripted features) or constitutional (biological tissue changes induced by a variety of factors ranging from stress to drug exposure) (Wise 1996; Piazza and LeMoal 1996). Psychological and behavioral class variables include those indicative of internal processes (such as thoughts, feelings), behavior-action profiles and repertoires (drug-seeking, general deviance), and interpersonal interactional styles. Social and environmental subclasses include family, peer, and institutional relationships. Class and domain factors include both structural and dynamic (that is, process-oriented) properties. Factors within a given domain may be classified as simple surface markers or as factors playing a specific role in moderating or mediating use outcomes. One of the important challenges to the scientific community is unraveling the manner in which factors singly or in combination operate to influence use behavior and outcomes.

This general structure is consistent with a living systems view of human drug-using behavior that seeks to explain drug use in terms of the interaction of biological, psychobehavioral, and environmental processes (Miller 1978; Ford 1987). Major factors in each of the domains or compartments of the biopsychosocial model related to the substance-use continuum and related outcomes include the following:

- Genetic profile
- Sensory processing disturbances
- Neurocognitive alterations
- Personal history of affective disorders or impulse disorders
- Family history of alcoholism or drug abuse
- Family history of impulse disorders, such as conduct disorder or antisocial personality
- Family history of affective disorders
- Emotional disturbance such as depression or anxiety.

These factors do not represent an exhaustive list of all factors identified in the literature, nor do they represent a "consensus taxonomy" of all factors. Rather, they are a representative sample

of the more accepted and documented factors in their most generic form. One of the most important and significant challenges that etiologists face is the development of a consensus taxonomy. The difficulty of the task is reflected in early and recent reviews of major theories of substance use etiology (Lettieri et al. 1980; Glantz and Pickens 1992; Hawkins et al. 1992; Petraitis et al. 1995).

Major biological risk and protective factors include the following variable domains: genetic profiles resulting in altered brain functioning and hence a predisposition to, or protection from, substance abuse propensity; sensory processing disturbances or stabilities; and neurocognitive alterations. The risk end of the continuum may be marked by family history of alcoholism, drug abuse, or related disorders, including affective disorders and emotional disturbances, presence of impulse disorders, and presence of neuropsychological dysfunction. The range spans more fixed or permanent, though more labile, characteristics of the individual.

The major behavioral/psychological risk and protective factors include the following:

- Personality styles, such as sensation-seeking, novelty-seeking, harm avoidance, or reinforcement sensitivity
- Emotional profile
- Self-regulation style, such as coping repertoire
- Behavioral competence
- Self-efficacy/esteem
- Positive and negative life events/experiences
- Attitudes, values, beliefs regarding drug use.

These factors range from internal—more global and perhaps more stable and less malleable individual characteristics (such as personality profile)—to those more sensitive and reactive to external vectors (behavioral competence, values, beliefs). Factors more reactive to external forces may be viewed as more suitable potential targets for intervention.

Social/environmental risk and protection factors include these:

- Structure/function of family supports
- Parenting styles
- Opportunities for development of basic competencies
- Peer affiliations
- Economic and social (including educational) opportunities
- General social support structure
- Availability of prosocial activities
- Structures, including schools, communities, or workplaces
- Strength and influence of the faith community
- Social norms, attitudes, and beliefs related to drug use
- Availability and projected attractiveness of drugs and drug use
- Economic and social incentives of drug trafficking.

As in the case of the biogenic and psychobehavioral domains, factors span a range of complexity of organization. Factors may reflect the dynamic interactions of the individual with family and peer groups, with the more structured relationships between segments of the population variously characterized (for example, schoolchildren, dropouts, delinquents, underage drinkers), and with social institutions (for example, schools, law enforcement, regulatory agencies).

Summary and Conclusions

Risk and protective factors include biogenic, psychobehavioral, and socioenvironmental markers, modifiers, and mechanisms. These factors vary in importance as a reflection of individual or group differences. Further, risk and protective profiles may vary in significance for the emergence of different use stages or outcomes. Similarly, the magnitude of the impact of specific risk and protective profiles may fluctuate during the lifespan. It appears clear that individual factors may be cumulative or synergistic; that is, they may combine to magnify or offset the negative or positive influences on the development of drug use and related outcomes. Significant for the prevention scientist is the finding that many of the most salient factors are

malleable and can be successfully reduced or induced through a variety of external interventions (Reiss and Price 1996). Equally important is the finding that some factors are relatively stable and may not yield readily to even intensive treatments.

A number of significant implications flow from the observations of etiological researchers working to understand the interplay of risk and protective factors. Intervention programs must [demonstrate understanding of] the nature of what they are attempting to prevent or promote. The design of intervention programs can profit substantially from consideration of the pattern of risk and protective factors within a given individual, target group, community, or social institution; and intervention strategies should be engineered on information derived from an understanding of the complex interaction and operation of these risk and protective factors.

Furthermore, intervention programs should seek to reduce immediate risks and promote more long-term protective factors in target groups or settings. The importance of particular risk and protective factors may change across groups, settings, and developmental periods of the lifespan. Hence, the general strategy for prevention efforts must encompass these facts.

Research to date indicates the import of long-term commitment to intervention programs across childhood, adolescence, and adulthood. Consequently, "preventionists" need to integrate multicomponent, multistage programs at many different developmentally sensitive periods.

Research aimed at understanding risk and protective factors and their application to prevention efforts has to be intensified (Reiss and Price 1996; Coie et al. 1993; Muñoz et al. 1996). The better we are informed about more specific patterns of factors related to use stages and outcomes and the way they function separately and together, the more effectively and efficiently we can design and implement prevention programs. Information derived from research has provided a broad platform from which present prevention efforts have sprung. Intensifying our research efforts will provide an informed science upon which these pioneering and prototypic prevention efforts can advance.

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Prevention Programs: What Are the Critical Factors That Spell Success?

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Introduction

After a decade of funding dedicated to reducing drug use that has averaged between $1 billion and $1.5 billion per year, the United States is currently experiencing an increase in illicit drug use among school-age youth (Johnston et al. 1996). This significant public investment, surely needed to reduce the prevalence of drug use, did not have the desired outcome. The challenge of preventing drug use will remain elusive until, as a society and body politic, we learn the essential lessons needed for success.

Fortunately, hope is available from scientific research, including examples of successful programs. Indeed, had the knowledge available today been actively applied during the past dec-ade, it is likely that the drug use situation would be different. This paper reviews the scientific principles of prevention that must be understood and applied for prevention efforts to be successful.

Epidemiologic Trends in Use

An epidemic of illicit drug use emerged among young people in the United States in the 1960s and continued to expand through the 1970s. Marijuana was the most popular illicit drug, with use among high school seniors gaining majority status. In the high school class of 1979, 60.4 percent reported having used marijuana (Johnston et al. 1996). Use of marijuana peaked around 1979 or 1980, and the decade of the 1980s saw a consistent decline to a point where annual prevalence was cut in half, going from one in two seniors in the class of 1979, to one in four seniors in the class of 1991. Marijuana use increased between 1975 and 1978, when the proportion of seniors reporting use of marijuana on a daily or near-daily basis in the past 30 days rose from 6.0 percent to an unprecedented 10.7 percent. Fortunately, that figure subsequently declined by more than 80 percent, reaching 2.0 percent in 1991. Recently, there has been a substantial turnaround. Daily use rates were 3.6 percent in 1994 and reveal a trend of increase that has not leveled off (Johnston et al. 1996).

Cocaine use among high school seniors did not decline until after 1986. Cocaine use increased dramatically in the late 1970s and stayed constant among adolescents in the early 1980s. The early 1990s have seen neither increases nor decreases in cocaine use.

Use of inhalants generally increased throughout the 1990s. Among high school seniors, the annual use rate observed in 1993 was 7.0 percent, the highest since observations began in 1975. This class of drug has become the most used substance (other than tobacco and alcohol) among younger students (Edwards 1993; Hansen and Rose 1995). Another substance that has shown recent signs of a reemergence is LSD (lysergic acid diethylamide), which had an annual prevalence among 1993 high school seniors of 6.8 percent, the highest level recorded since 1975 (when it was 7.2 percent). Use rates increased for all three grades between 1991 and 1994. Amphetamines are yet another class of drugs that showed increases in use for all three grades between 1991 and 1994.

The decline in illicit drug use between 1980 and 1990 has been largely attributed to the Omnibus Anti-Drug Act, which pumped hundreds of millions of dollars into schools and communities to combat illicit drug use. However, two facts should be noted. First, the start of the decline in the use of marijuana, amphetamines, sedatives,

and tobacco predated the expenditure of Federal funds and continued at about the same rate despite the infusion of Federal dollars. For example, between 1978 and 1986 (the year the Omnibus Anti-Drug Act was passed by Congress), the average rate of decline in 30-day illicit drug use was 1.8 percent per year. Between 1987 and 1991, the average rate of decline increased, but only minimally, to 2.1 percent per year.

Second, the recent turnabout in the use of some drugs corresponded to a period of relatively high levels of funding, when programs, training, and infrastructure were in place. These considerations are particularly important given our understanding of the time course of drug use development. Among youth, the proportion of students who use drugs increases gradually from middle or junior high school, not abruptly at the 11th or 12th grade. This suggests that the turnabout observed in high school seniors in 1992 may have had its beginnings several years earlier.

There are many disturbing aspects of the recent trends in use of illicit drugs among students in the United States. Only a short time ago, it appeared that illicit drug use was on a downward trajectory, which was comforting for parents, teachers, and community leaders. The recent trajectories for a number of drugs—drugs that are important because of their considerable potential for serious damage—are clearly not so comforting now. This evidence suggests that funded efforts in schools and communities have not been highly effective. Because of the overall failure of initial efforts to produce long-term changes in drug use, standard practices must now be dramatically improved. Models are clearly needed to bolster confidence that effective preventive practices can be identified, adopted, implemented, confirmed, and sustained. Truly effective drug use prevention methods that are adopted and maintained at a significant level should be expected to meaningfully suppress all measures of drug prevalence. Our goal should be to focus on the adoption of scientifically grounded preventive intervention methods that can produce a definable turnaround in the current trend of increasing drug use.

Prevention

Prevention research has focused extensively on three drugs: alcohol, tobacco, and marijuana. Cocaine has received extensive media coverage and is a target of interdiction by law enforcement. However, cocaine has not been targeted in adolescent research programs, primarily because its use has a relatively low prevalence among adolescents, and because cocaine and other "hard" drugs are seldom initiated without the earlier regular use of alcohol, tobacco, and marijuana (Graham et al. 1991; Kandel 1978; Kandel et al. 1992). The trend of high inhalant use is too recent for a significant body of research to have emerged (Edwards 1993; Hansen and Rose 1995).

The goal of prevention is to delay, deter, or eliminate the onset of substance use within populations. At the core of prevention programs are several assumptions that deserve consideration. It is now widely recognized that effective prevention programs have several common features (Dusenbury and Falco 1995; Hansen 1992; Tobler and Stratton 1997). This paper elaborates and comments on several of these topical features that are crucial to success. Features are presented in order of importance for determining program success. Specifically, this review focuses on evidence for program effectiveness based on program focus, delivery technique, evaluation, and training and support.

Program Focus

Program focus, the message of the program and what the program attempts to change, is the most important element of preventive intervention. Program focus describes *how* the program is supposed to work and *what* immediate outcome the program is trying to produce that will eventually result in a change in the onset of drug use.

The history of prevention suggests three periods of program development. The first period can be characterized as well-intended efforts driven by common sense, ideology, or intuition. The second period is characterized as being theory-driven. The third period, only currently

emerging, will ultimately be characterized as data-driven. This paper focuses on what has been learned from school-based efforts, primarily because most of the published research is in this domain; however, the principles gleaned from this research should be readily applicable to other settings.

Intuition-Driven Prevention

Intuition-driven prevention programs were often developed by individuals who had little formal training in an academic discipline but who viewed drug use as an issue that called for social action. Various approaches qualify as intuitive approaches. Programming efforts often focused on the health consequences of drug use. Having former addicts present their stories and describe the horrors of addiction was commonplace. Other approaches stressed understanding what drugs looked like, how they were injected or ingested, and how they were sold. By and large, intuitive efforts have not been evaluated. Most are not packaged in a manner allowing program definition that is amenable to evaluation or research.

Justification of these approaches often referred to common sense assumptions. Nearly every citizen has a ready explanation of drug use. Those explanations that seemed logical were the most likely to be adopted. For example, there is a clear logical connection between the fact that drug use is harmful and that the nature of the harm should be communicated. Many people viewed those who used drugs as having low self-esteem. The logical corollary of such a view was that prevention programs should focus on improving self-esteem. A number of good ideas have emerged from applying intuitive thinking to prevention; however, intuitive ideas alone do not always produce effective methods for intervention and can result in ideological thinking that may interfere with the adoption of more productive methods.

Intuitive methods have resulted in numerous commercial products. Only recently have commercially available programs been evaluated. Three curriculums in particular have captured a sizable segment of the prevention program market, DARE (Drug Abuse Resistance Education), Quest: Skills for Living, and Here's Looking at You, 2000. Of these, only evaluations of DARE have been reported in sufficient numbers to draw conclusions.

The DARE program consists of materials created by the Los Angeles Unified School District. Some materials were borrowed from eclectic research-based programs that were developed in the early 1980s but were redeveloped to fit with an ideology consonant with police officer-delivery of the program; it is largely intuitive in its approach. The program is delivered by uniformed police officers who have received extensive training at one of five regional training centers. DARE is delivered annually to about 5½ million students in the United States. The program is delivered in all 50 States and has made international connections as well.

The magnitude of the program notwithstanding, there is little evidence to support DARE as a viable or effective approach to substance abuse prevention. In a recent review by Ennett and colleagues (1994), 17 published and unpublished manuscripts documenting evaluations of DARE were examined. Of the 17, only 11 met minimal standards for methodological rigor and were used to form the basis of interpreting findings. None of these studies demonstrated any outcome effectiveness of DARE. The average calculated effect size reported was .06, indicating very small average effects. Overall, drug use among control schools and DARE schools was roughly equal. Several of these studies were longitudinal and found neither short- nor long-term results. Moreover, DARE has been most heavily institutionalized since 1990, a period during which drug use has been escalating.

Other packages that have been widely adopted include such programs as Quest: Skills for Living, Project Adventure, Ombudsman, BABES, Project CHARLIE, Children Are People, and Here's Looking at You, 2000. There are no adequate evaluation results by which the effectiveness of these programs can be judged (Thorne, personal communication). Evaluations that have been conducted have primarily been short-term evaluations for dissertations and theses and lack interpretable behavioral end points (Swisher, personal communication). All programs, including those that are intuition-driven, should be evaluated to determine potential effectiveness.

Theory-Driven Prevention

What distinguishes theory-driven from intuition-driven efforts is a reliance on a body of formalized research. Many early theory-driven approaches relied on research findings that, although relevant to drug use, were not the direct result of the application of research to drug use problems. Thus, social psychologists drew from strategies that reflected the theories of their discipline, such as social learning theory (Bandura 1977), much of which initially came from the study of aggression among children, and the theory of reasoned action (Ajzen and Fishbein 1980), which initially focused on a host of social behaviors other than drug use. Sociologists drew from social control theory (Hirschi 1969), which focused early attention on delinquent behavior. Developmental psychologists focused on skill and competency theories (Higgins et al. 1983) and theories that addressed affective social development (Watson et al. 1989). Researchers grounded in public health issues used the health belief model (Becker 1974), which originally focused on a variety of health behaviors, not specifically on preventing drug use among adolescents.

Beginning in the 1970s (e.g., Evans et al. 1978) and continuing through the 1980s, numerous field trials were held in which various combinations of elements were delivered and long-term followup tracking of behavioral effects was completed. By and large, these field trials focused on programs that were theory-driven. For example, Evans and colleagues were the first to identify social perception and processes related to social influences and to draw from social psychological theory in the development of intervention strategies. These efforts relied on a combination of host-discipline theory (that is, theories in which the program developer was trained as a student) and intuition (often not admitted) to guide program development. Moreover, there was an open eclecticism in which bits and pieces of multiple theories were often assembled to create a matrix of theoretical support for any given intervention.

Numerous reviews have been completed about the effectiveness of theory-driven curricular approaches to prevention. These reviews have spanned the spectrum and have made a unique contribution to understanding the field of prevention. Tobacco use prevention studies have been extensively reviewed (e.g., Best et al. 1988; Botvin and Wills 1985, pp. 8-49; Evans and Raines 1982; Flay 1985; Leventhal and Cleary 1980; Thompson 1978). Alcohol has been the focus of several reviews (Goodstadt 1980; Gordon and McAlister 1982; Moskowitz 1989). Reviews that are specific and limited to examining the prevention of marijuana or cocaine use do not exist. However, several reviews have included an examination of use prevention for multiple substances (Bangert-Drowns 1988; Coie et al. 1993; Moskowitz 1989; Schaps et al. 1981; Tobler 1986; Tobler and Stratton 1997).

Previous reviewers have faced the problem of creating a meaningful classification scheme. For example, Tobler (1986) examined major themes by researchers reporting results and proposed five summary program categories to describe functional content groupings: knowledge only, affective only, peer, knowledge plus affective, and alternatives.

Bangert-Drowns (1988) similarly classified programs into three types according to functional content: information only, affective education only, or mixed. On the other hand, Coie et al. (1993) based their classification on theory types rather than program types and came up with four types of program components: rational, social reinforcement, social norm, and developmental. Coie and colleagues demonstrate that there is some similarity between their conceptualization of the theoretical underpinnings of prevention programs and those suggested by other reviewers (Bernstein and McAlister 1969; Thompson 1978; Leventhal and Cleary 1980; Moskowitz et al. 1983; Schaps 1981).

In other reviews, Hansen (1992), Tobler (1986), and Tobler and Stratton (1997) have independently presented categorization schemes that are highly similar to those presented above. Four functional categories of programs were identified by each author. For Hansen (1992), classification schemes were based solely on program content. Resulting groups of curriculums included information and values clarification programs, affective programs that also included

information components, social influence programs that also tended to include information, and multiple component programs that usually included some element of all three of the previous groups but emphasized social influence in conjunction with additional affective strategies.

More recently, Tobler and Stratton (1997) have suggested seven content areas: knowledge, affective education, refusal skills, generic skills, safety skills, extracurricular activities, and other strategies. Although this broadens the conceptualization of programming, little is available about the potential of any specific program strategy.

There is some intersection among these classification schemes. Notably, social processes, generic skills, and knowledge often emerge as themes of intervention programs. Such generalizations allow synthesis researchers to gain an understanding of the effects of general approaches. Unfortunately, such categorizations are too broad to allow for a precise classification of programs and often obscure specific program elements that may be important to the design of prevention programs. Preventive interventions consist of complex sets of instructions. Broad categories provide few insights about what constitutes the effective agent of a preventive intervention.

Researcher-generated programs are more often evaluated than commercially developed programs, because evaluations are essential to the process of research-based efforts. However, until recently, the resources needed to complete these evaluations have been lacking. The effectiveness of school-based curricular approaches has been widely questioned (Moskowitz 1989). The primary difficulty in gaining an understanding of which strategies hold promise concerns methodological difficulties in conducting field trials to evaluate the effectiveness of these strategies. Nonetheless, two recent reviews (Hansen 1992; Tobler and Stratton, 1997) suggest that, despite these difficulties, there are promising findings, particularly among the program types that include social influence approaches.

Hansen (1992) reviewed the effects of programming on outcome variables from 45 published and unpublished studies. The results revealed positive outcomes for the following types of programs: information, 31 percent; affective education, 19 percent; social influence, 51 percent; and multiple component, 50 percent. In contrast, negative outcomes were found for the following types of programs: information, 25 percent; affective education, 19 percent; social influence, 11 percent; and multiple component, zero percent. Outcomes that were neither positive nor negative were common among all program categories; information programs (44 percent), multiple component programs (50 percent), and affective programs (62 percent) had more nonsignificant results than social influence programs (38 percent).

Overall, social influence and multiple component programs, which also typically featured social influence strategies as major components, had more positive results than either information-based approaches or affective education approaches. This overall pattern was maintained when studies with methodological weaknesses were deleted. Among these analyses, only 30 percent of information-based and 42 percent of affective programs had significant findings as compared to 63 percent of social influence strategies, and 72 percent of multiple component strategies.

Tobler and Stratton (1997) used means and standard deviations to calculate effect-size statistics for each of the studies cited above. Their review increased the number of studies in the analysis and conducted analyses on two data sets. The first included all reported studies for which effect sizes could be determined. The second included only those studies from the larger group that met methodological standards for inclusion (adequate followup, control groups, etc.).

Programs that were primarily informational or affective in nature had relatively small effect sizes. In contrast, programs that featured social influence approaches or included life skills approaches in addition to social influence approaches were relatively effective. Such programs include Project SMART (Hansen et al. 1988), Project STAR (Pentz et al. 1989), and Life Skills Training (Botvin et al. 1990).

Data-Driven Prevention

More recently, researchers have systematically attempted the development of a science of prevention (Coie et al. 1993; Hansen and McNeal 1996) that rests on empirical findings about etiology (Pandina, this volume). The essential difference between data- and theory-driven programs is that empirical evidence about mediating variables dictates the content of interventions. Data-driven programs require that interventions abandon methods that address variables that have weak statistical relationships with drug use.

On the other hand, theory-based interventions do not exclude intervention strategies that fit with a theoretical model even if data supporting that method are not particularly strong. Data-driven programs ignore theory; insights from theory are used identically for both theory- and data-driven programs. As a result, theory has not been abandoned, but it is second in priority to empirical findings. Explanation is important only once empirical relationships have been established. However, theory does not drive the selection of variables for intervention.

Research on substance abuse etiology has examined numerous variables that serve as markers of these concepts, and empirical findings can be used to demonstrate the potential of prevention programs to affect behavior. The essential logic of the etiologic approach is that a program must target a variable that statistically accounts for behavior. Variables that do not account for differences between users and nonusers, or between users and abusers, hold little promise for being able to influence programmatic outcomes. Furthermore, variables must be changeable. Gender, ethnicity, age, socioeconomic status, and basic personality characteristics—such as a tendency to take risks—are variables that often predict drug use. These variables are almost always considered in program design. However, these variables are not likely to be changed by a program and are therefore not the primary concern in selection of what a program is to change.

The focus on data-driven approaches began with mediating variable analyses of theory-driven programs (MacKinnon et al. 1991) and field trials in which tests compared programs that isolated specific subcomponents (Hansen and Graham 1991; Donaldson et al. 1994). Pioneering work completed by MacKinnon and his colleagues (1991) analyzed the mediating variable paths through which the Midwest Prevention Project intervention worked. These analyses demonstrated that much of the effect of the tested curriculum was statistically attributable to changes in normative beliefs and changes in beliefs about consequences that were targeted by the curriculum. Several elements of the program, such as resistance skills, were judged to be inert because they lacked mediating variable significance.

The Adolescent Alcohol Prevention Trial (Hansen and Graham 1991) tested the effects of a program that focused on establishing conventional norms and of a program that focused on teaching skills for resisting peer and other social pressures. Significant main effects were observed for the program that focused on normative education, whereas the program that focused on resistance skills was essentially no different than that for controls. Subsequent analyses (Donaldson et al. 1994) revealed that the resistance skills program had potential for effectiveness, but only when students were motivated from the outset to learn skills.

It is increasingly recognized that program success is determined primarily by the degree to which programs change the characteristics of students, schools, neighborhoods, and families that statistically or mathematically account for changes in drug use. Two laws of program effectiveness have recently been proposed (Hansen and McNeal 1996). The first, the *law of indirect effect*, posits that programs must operate by changing mediating variables (that is, changing modifiable risk and protective factors). The second, the *law of maximum expected potential effect*, posits that only programs that target and change characteristics that statistically account for drug use have the potential to succeed. Programs that fail to target appropriate characteristics or that target appropriate characteristics but fail to produce needed change cannot and will not succeed.

A meta-analysis of 242 studies revealed that 11 major types of variables have been examined in etiologic studies (Hansen et al. 1993): previous drug use, intentions to use drugs, cognitive factors, competency factors, personality factors,

institutional influences, drug use by others, pressures to use drugs, peer group characteristics, home factors, and demographics such as age, gender, and ethnicity.

Drug use has long been known to be the single best correlate of the concurrent use of other substances and the best predictor of future drug use behavior. Substance use is habitual, and many substances are known to be addictive, creating severe withdrawal [symptoms] when discontinued. However, it is important to note that factors other than habit and addiction account for variations in an individual's behavior over time. Therefore, a primary goal of prevention should be to postpone and suppress drug use.

The "drug use by others" category had a relatively strong correlation. Drug use by peers was more strongly correlated with self-reported drug use and drug use by siblings than with parental drug use. Beliefs about the psychological and social consequences of and attitudes toward drug use also had strong average correlations. Beliefs about health consequences were not as strongly correlated. Reported pressures to use substances, which included offers from peers and parents, as well as perceived attitudes about drug use among others, had large average correlations. Bonding and commitment to school had a strong correlation with substance use, as did deviance.

Several categories of variables had weak relationships with substance use. The weakest observed category of variables was home factors, including the psychological traits of parents, parent-child relationship, parental marital status, parental education, family composition, and socioeconomic status. These factors are different from parental attentiveness, parenting style, and parental drug use, which tended to have higher correlations.

Other variable groups included institutional influences such as church attendance and affiliation and participation in sports and other structured activities. A weak relationship existed between the substance use and competence and personality variables, including self-esteem, moodiness, and locus of control. Demographic variables, such as race and gender, all had average correlations.

Twelve Targets of Prevention Programs

Research in progress (Hansen 1996*a*; Hansen and Graham [unpublished]; Hansen and McNeal 1997) provides additional information about etiology that aids in understanding the potential of different programmatic approaches to prevent onset of drug use. The research examined 12 mediating variables that were hypothesized to act as change agents in substance use prevention programs (Hansen 1992).

1. *Normative Beliefs*—Perceptions about the prevalence of drug use among close friends and same-age peers at school and the acceptability of substance use among friends. Perceptions are often exaggerated; teens think drug use is more prevalent and more acceptable than it really is.
2. *Lifestyle/Behavior Incongruence*—The degree to which the student views substance use as incongruent with personally held current lifestyle and future aspirations. Teens who perceive their desired lifestyle as not fitting with drug use are hypothesized to be protected.
3. *Commitment*—Personal commitments regarding substance use. Topics include public statements of intentionality (for example, "I have signed my name somewhere to show that I have promised not to use drugs"). Items also assessed a student's private intentions (for example, "I have made a personal commitment to never smoke cigarettes").
4. *Beliefs About Consequences*—Beliefs about social, psychological, and health consequences, including being part of a group, being less shy, doing embarrassing things in a group, having fun, having bad breath, having health problems, dealing with personal problems, and the probability of getting into trouble.
5. *Resistance Skills*—Perceived ability to identify and resist pressure to use alcohol, tobacco, and marijuana. This refers to an individual's ability to say "no."

6. *Goal-Setting Skills*—Application of goal-setting skills and behaviors, including frequently establishing goals, developing strategies for achieving goals, and persistence.
7. *Decision Skills*—The degree to which teens understand and apply a rational strategy for making decisions.
8. *Alternatives*—Awareness of and participation in enjoyable activities that do not involve substance use.
9. *Self-Esteem*—The degree to which teens feel personal worth and perceive themselves to have characteristics that contribute to a positive self-evaluation.
10. *Stress Management Skills*—Perceived skills for coping with stress, including skills for relaxing as well as for confronting challenging situations.
11. *Social Skills*—Ability to establish friendships, be assertive with friends, and get along with others.
12. *Assistance Skills*—The degree to which students believe they are able to give assistance to others who have personal problems. Included in this concept is the ability to find help for oneself when experiencing personal difficulties.

Mediating variables were compared on the basis of their ability to predict subsequent self-reported substance use. The variables most strongly associated with future drug use were normative beliefs, values, and commitment. Moderately strong, but consistently less predictive, were self-efficacy to resist peer pressure and beliefs about consequences of drug use. These results, based on 1-year lagged correlational data collected from 2,639 sixth- through ninth-grade students, demonstrate that substance use prevention programs that target correcting erroneous normative beliefs, creating a perception that substance use will interfere with a young person's desired lifestyle, and building personal commitments may have optimal potential for success. Because the magnitude of correlation is expected to be directly related to the potential for a program to result in behavior change (Hansen and McNeal 1996), it is clear that choosing the correct set of mediators for intervention may have a clear payoff in behavior change terms.

An important advance that accompanies the development of data-driven prevention is a reliance on mediating variable analysis statistics to determine the reasons for program success or failure. These statistics (MacKinnon 1994, pp. 127-154; MacKinnon and Dwyer 1993) allow researchers to calculate the degree to which changes in behavior are the result of having changed mediators. The primary implication of mediating variable analysis methods is the ability to use data about mediators and drug use outcomes to determine empirically how program effects were achieved, defining the essence of data-driven strategies for prevention program development.

Mediating variable analysis methods can be applied to any program as long as a mediating variable is measured. These methods were recently applied to understanding how the DARE program works (Hansen and McNeal 1997). These analyses demonstrate that the lack of effects of DARE is related to insufficient impact on the program elements that must be changed to produce a preventive effect on behavior. For instance, DARE had an effect on improving the commitment of students, but the effect was too small to have a large impact on behavior. Other variables that are targeted by DARE, such as peer pressure resistance skills and normative beliefs, were not significantly or meaningfully changed.

Two problems may be at the root of the lack of success to date of applied prevention activities. First, few programs target the right sets of mediating variables. Second, even among those programs that do address variables that have a strong potential to mediate drug use, there is little demonstrated evidence that such programs have a strong impact on these variables.

One program that was recently developed to specifically respond to these findings has been All Stars (Hansen 1996*b*). This program addresses four mediators—building incongruence between desired lifestyles and high-risk behaviors, establishing conventional norms and correcting erroneous normative beliefs, building strong personal

commitments to avoid high-risk behavior, and developing prosocial bonds. To date, only pilot-test data are available. Compared with students who received the seventh-grade DARE program, students who received the All Stars program had significantly better outcomes on each mediator.

Conclusions About Program Focus

Success in school-based drug use prevention requires the development of a significant knowledge base. Without it, preventive approaches will fail more often than they succeed. Currently, the school-based prevention field is characterized and dominated by individuals and groups who believe strongly in the value of prevention. However, such activist approaches to prevention more often rely on a determination to succeed rather than the technical knowledge to achieve their goals. Unfortunately, such approaches seldom, if ever, achieve prevention goals. No matter how widespread, politically viable, or popular a program may be, effectiveness in preventing the onset of substance use and abuse must remain the primary and sole criterion by which programs are judged.

In contrast to the state of the practice, the state of the art in prevention programming clearly favors programs that are data-driven. Programs must target and change mediating variables that are strongly predictive of substance use development. Evidence suggests that the most promising targets for prevention programming include establishing conventional normative beliefs, building strong personal commitments, and developing prosocial bonds with school and other prosocial institutions, such as the church and the Boy Scouts and Girl Scouts. Other targets that may prove valuable include resistance skills training (see caveats in Hansen and Graham 1991 and Donaldson et al. 1994), developing perceived incongruence between lifestyle and drug use (not yet tested empirically), and developing general competence. Given the correlations between drug use and delinquency, including premature sexual activity, prevention programs should address broader issues.

Many of the approaches that have been popular in the past, including building self-esteem, teaching generic social skills, and teaching specific skills such as stress management, are not likely to be effective in school-based prevention. Programs that target these characteristics may fulfill other needs but are not likely to be effective as preventive tools. Current prevention programs focus on a diverse set of mediators. Programs can be improved by refocusing attention on changing variables that have the potential to mediate behavior.

Delivery Technique

Relatively little research that systematically varies the style of program delivery has been conducted. The evidence that does exist is largely drawn from Tobler's meta-analytic studies (Tobler 1986; Tobler and Stratton, 1997), which have examined the style of program delivery across many different quasi-experimental trials. Even though limited, the evidence is compelling. Tobler and Stratton (1997) present comparisons between programs that were judged to be interactive versus those judged to be noninteractive. Interactive programs were those in which students were actively engaged through discussion, role-plays, and games. Noninteractive programs were those that relied heavily on lecture, film and videotape, and silent worksheet-type activities. In seven of eight analyses in which the behavioral outcomes of interactive and noninteractive programs were compared, interactive programs had significantly more overall effectiveness.

These findings have an important implication for the design of prevention programs for students. Despite increasing efforts to develop interactive methods, teaching methods have traditionally relied heavily on noninteractive methods. A significant shift in these methods may be required before effective prevention can be achieved.

Because relatively little research is available from randomized drug prevention studies, benchmarks are challenging to establish. One recent review of prevention programs made judgments about the interactiveness of programs based on an evaluation of written materials (Falco 1996). However, it clearly becomes a challenge to judge such programs in the abstract. Many of the programs included in meta-analyses are completed under relatively good supervision. Program integrity has been clearly linked to outcome in prior

research (Rohrbach et al. 1993). Training and other support that can help guarantee the fidelity of program implementation should be given.

A basic definition of interaction has not yet been developed. One might presume that one-way communications (preaching, lecture, film without discussion, demonstrations) are not interactive. However, it is not clear what variety of activities constitutes interaction. The goals of interaction are to engage participants in an active and positive way. Discussion can be more or less interactive, depending on how emotionally involved, attentive, reflective, and actively involved students become. Teaching skills through games and role-plays is also more likely to engage participants.

When research is completed, some forms of interactive teaching may be preferred to others. For example, personal experience from Project SMART revealed that role-plays about peer pressure often had unintended effects. That is, role-players failed to resist pressure convincingly, and individuals assigned to play offerers often stole the show (Hansen, Graham, et al. 1988).

Experience has also shown that Socratic discussions, while potentially highly interactive and involving, can result in undesired conclusions. Interactive teaching that is likely to succeed might well be thought of as any method that has the ability to engage participants in the active consideration of appropriate program materials, whether it be to develop skills or ensure active cognitive processing.

It is likely that the only way for programs to achieve changes in mediating targeted characteristics is to require introspection within the self and observable "real" behaviors and attitudes within the peer group. Noninteractive techniques provide little motivation or opportunity for either of these to occur.

One way interactive methods work is by requiring the individual to place personal perceptions and beliefs in the open for examination by others. For example, norm-changing programs require students to understand what others do and how others feel. Such approaches require that students reveal personal information. Interactive methods often involve structured conflict that may also bring emotional reactions from participants. In such circumstances, interactive methods are much more likely to foster introspection and the critical examination of the attitudes, beliefs, and behaviors of others.

Interaction, by definition, is a performance variable. No matter how it is defined in a written curriculum, if interaction does not emerge in the classroom, interaction does not exist. There has been concern about teacher preparedness to engage in interactive methods (Bosworth and Sailes 1993). In such circumstances, interactive techniques are of unknown potential benefit. Thus, although interactive methods are the only methods for which program success is apparent, interaction remains a challenge.

Finally, interaction alone is not expected to be a sufficient condition for prevention. Effective programs are interactive, but not all interactive programs will be effective. Programs that are highly involving for students but do not address the changing drug-related characteristics of students are not expected to be any more effective than programs that are not interactive.

Evaluation

To be successful, programs must demonstrate lower rates of substance use onset among students receiving the program than among students not receiving the program. Evaluation is crucial to the achievement of prevention effectiveness, although many programs are defended on the basis of testimonials and subjective evaluations. Improving effectiveness goes hand-in-hand with critical program evaluation. This is true for several reasons. First, evaluation achieves a focus on end points that cannot be developed any other way. Second, evaluation provides information that can be actively incorporated into programming to guide program development and improvement. Finally, without evaluation evidence, the ultimate effectiveness of a program simply cannot be known. Claims of effectiveness without data have proven misleading in the past and have contributed to the reemergence of drug use.

When the Omnibus Anti-Drug Act was passed, the technical capability for program evaluation existed. But the technology for conducting

evaluations was not disseminated broadly, and there was a lack of political interest in doing such evaluations. During the past decade, at least three surveys (American Drug and Alcohol Survey from the Rocky Mountain Behavioral Science Institute, the Pride Survey from PRIDE, and the Youth Risk Behavior Survey from the Centers for Disease Control) have become available to schools. These surveys provide valuable information that can be used for tracking drug use and mediating variables. In addition, several States have recently adopted Statewide needs assessment surveys, often collected through the schools.

Many of these surveys contain information that could be used in evaluation studies. Because the prevalence of drug use increases among students as they grow older, evaluations that do not include appropriate comparison groups will appear to demonstrate only that drug use is increasing. Several reasonable possibilities exist, including (1) comparing program groups with highly similar groups (in terms of ethnicity, age, socioeconomic status, and risk for drug use) not yet exposed to the program; (2) comparing different age groups at the same outcome point, for example, comparing an entire grade of students who received a program with an entire grade of students who did not receive the program but at the same end point (e.g., ninth grade) (McNeal and Hansen 1995); and (3) comparing data about program groups that have known preprogram similarity with national data. The technology required to complete evaluation studies is clearly within reach of most social scientists. Several groups that offer commercial surveys are also capable of providing evaluation comparisons.

A consistent recommendation is to adopt programs that have previously been evaluated elsewhere. Although the adoption of programs that have been empirically validated would clearly be an improvement over current practice, several caveats about such strategies should also be kept in mind. Society and the research base are constantly changing. Published program evaluations that address behavioral outcomes typically involve a delay of 4 to 5 years. Dissemination and interest in findings may add another 2 to 3 years. Simply adopting a program that can pass a strict litmus test of effectiveness may keep schools from ever having an effective program.

Many of the evaluations in the literature that show promise today were completed by the same group that developed the program being evaluated. It is inevitable that some biases, either in program implementation or in the selection of findings to report, exist in this literature.

Finally, many of the programs recently reviewed and given high ratings by Falco (1996) are either old or not commercially available. In the end, the capability of conducting local evaluations may be as viable as adopting programs shown to be promising through external evaluations.

Training and Support

The potential effectiveness of any prevention program is only as great as the person delivering the program. Bosworth and Sailes (1993) note that the teaching techniques used in the most promising prevention programs are often a challenge for teachers to implement. Programs are complex and may not provide sufficient written background for teachers to use without training. Furthermore, with programs increasingly relying on both theory- and data-based rationales for development, it is important to understand the concepts of the programs.

Teaching has a long tradition of reinvention, and teachers will interpret new materials from within their existing framework. The promising programs may involve a program focus and teaching style that is radically different from a teacher's existing paradigm. Instead of focusing on knowledge acquisition (the primary paradigm of teaching), promising programs focus on socialization, psychological dissonance, and emotion-laden topics and methods.

Early success in program delivery appears to be an important determinant of ultimate maintenance of prevention programs. Teachers who find delivering a program too difficult may quickly abandon further efforts. Flannery and Torquati (1993) failed to find any relationship between school principal support and teacher participation in training, but did find that satisfaction with the program was a major determinant of program continuance. Rohrbach and colleagues (1993)

found that teachers who maintained a psychosocial prevention program beyond the first year were those who had higher self-efficacy, enthusiasm, preparedness, teaching methods compatibility, and support from their school principals.

Gingiss (1992) concludes that improving program implementation and maintenance is highly related to teacher training: (1) Teachers respond to innovations in developmental stages; (2) a multiphase approach to staff development is needed to help teachers through each stage; (3) continuing training is important (preservice training is insufficient); (4) approaches to training should fit the skill levels of teachers; and (5) teacher training should be conducted in a manner that allows training and the implementation of the program to maintain high visibility, credibility, and value.

In support of the last recommendation, Parcel and coworkers (1988) postulate that institutional commitment, changes in policies, and establishment of appropriate roles may be prerequisites to the successful adoption of innovative programs. This may include the identification of specialists who take on different roles within the school in delivering prevention programs. It may also require active participation by teachers in making decisions about program adoption (Parcel et al. 1991; Paulussen et al. 1994). For example, some research (Perhats et al. 1996) suggests that teachers and parents are much more sensitive to the potential effectiveness of prevention programs than are principals, school board members, and administrative specialists.

There has been little research on the potential for such strategies as continuing education to help improve teachers' motivation, understanding, and self-efficacy. However, continuing education is the primary source of post-inservice training that is available in most school districts.

Conclusion

The field of prevention has made significant progress. Science-based programs now have the potential to significantly reduce or, at a minimum, deter the onset of drug use among youth. Programs that focus on data-driven content that is theoretically informed have increased the potential strength of programming. These programs are highly interactive. They require training and support to be delivered effectively. In all cases, programs benefit from the adoption of evaluation methods that have the potential to document success and inform about failure. Local evaluation will be increasingly important in understanding the potential for programs to be effective.

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Preventing Drug Abuse Through the Schools: Intervention Programs That Work

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Introduction

National survey data show that drug use among our Nation's youth is increasing at an alarming rate. Some say that we are on the verge of a major epidemic. However, 20 years of research have now provided the tools to change the current course of events and to reverse the increases in teenage drug use that began in 1992. We know more about the causes of drug abuse than ever before, and we have learned a great deal about what works and what does not. We are beyond the point where we have to make uninformed choices about what might prevent or reduce teenage drug use.

This paper discusses the progress in school-based prevention, both in general and with respect to the work of the author and colleagues at Cornell University Medical College. A major assumption in this work and a major theme of this NIDA conference is that prevention should be based on science—not on hunches, guesses, and wishful thinking. As General Barry McCaffrey, director of the Office of National Drug Control Policy, has said, "Ideology must be replaced by science."

The Quest for Effective Approaches

More than two decades have been devoted to trying to find effective approaches to drug abuse prevention. The goal of identifying effective prevention approaches has been elusive. Although many approaches have increased knowledge about the adverse consequences of using drugs and some have increased antidrug attitudes, few programs have demonstrated an impact on drug use behavior. However, early prevention efforts were based largely on "intuition" rather than on theory or science. As the field of drug abuse prevention has matured, there has been an increasing reliance on theory derived from empirical evidence of the causes of drug abuse.

Over the past few years, prevention efforts in general and school-based research in particular have begun to bear fruit. During this time, mounting empirical evidence from a growing number of carefully designed and methodologically sophisticated research studies clearly indicates that at least some approaches to drug abuse prevention work.

The purpose of this paper is to provide a brief overview of what is currently known about the effectiveness of drug abuse prevention efforts in school settings. The primary focus is on approaches that have been subjected to careful evaluation using acceptable scientific methods and whose results have been published in peer-reviewed journals.

Why Conduct Drug Abuse Prevention in Schools?

A variety of drug abuse prevention approaches have been developed and tested with different degrees of success. Clearly, one of the most productive areas of prevention research has involved the testing of approaches designed to be implemented in school settings. The reasons for the focus on school-based drug abuse prevention are rather obvious and straightforward. Most prevention approaches are designed to target school-age populations, with the greatest emphasis on middle/junior high school-age adolescents. Schools, therefore, serve as natural sites for both implementing and testing prevention approaches that target individuals in this age group. Schools

provide relatively easy access to a large number of individuals who are the logical targets of prevention efforts. Schools are also the logical site of prevention efforts because they offer a structured setting within which prevention programs can be conducted and evaluated in a methodologically rigorous way.

Although schools are generally most concerned about their traditional educational mission, most States require that students receive tobacco, alcohol, and other drug education, either alone or as part of a larger health education curriculum. Notwithstanding the fact that this may amount to little more than one semester during the entire middle/junior high school years, it frequently provides a natural programming slot through which drug abuse prevention curriculums can be scheduled. Educators also are gradually beginning to recognize that both health and drug abuse prevention are important to the achievement of traditional educational objectives. The problem of drug abuse, therefore, has come to be seen as both a health problem and a barrier to educational achievement. Thus, educators have become increasingly receptive to the idea of setting aside some part of their academic schedule for drug abuse prevention.

Building on a Solid Scientific Foundation

Over the past decade and a half, drug abuse prevention studies have proceeded through several phases, ranging from small-scale pilot studies designed to test the acceptability, feasibility, and preliminary efficacy of promising approaches, to large-scale randomized field trials designed to provide the strongest possible evidence that a particular prevention method works. The most promising approaches have three distinguishing features: They are based on an understanding of what is known about the etiology of drug abuse, are conceptualized within a theoretical framework, and have been subjected to empirical testing using appropriate research methods. Although all three are critically important, the most fundamental element of any prevention program is an approach that is based on an understanding of the etiology of drug abuse.

The knowledge base that has developed concerning the etiology of drug abuse indicates that drug abuse is not caused by a single etiologic factor. Instead, there are many different factors that appear to interact with one another to produce a complex, probabilistic risk equation. This makes prevention much more difficult, because instead of identifying a single cause and developing an intervention to target it, interventions must target multiple risk and protective factors. As Pandina (this volume) indicates, research on the etiology of drug abuse suggests that to be effective, prevention programs targeting children and adolescents must influence social factors as well as knowledge, attitudes, norms, skills, and personality. To the extent possible, consideration must also be given to the importance of biological, pharmacological, and developmental factors.

Information concerning the age of onset and developmental progression from the work of Kandel (1978, pp. 3-38) and others (Hamburg et al. 1975) indicates that the initiation of drug use tends to follow a logical and predictable sequence. Most individuals begin by experimenting with alcohol and tobacco, progressing later to the use of marijuana. All of these substances are widely used in our society, and not surprisingly, the progression of drug use conforms exactly to the prevalence of each substance in our society. Correspondingly, these substances are also widely and easily available, frequently in the home. Because of their availability, inhalants are also used early in this sequence. Some individuals progress later to the use of other illicit substances such as stimulants, depressants, narcotics, and hallucinogens. This suggests that the focus of early prevention efforts should be on those substances used at the beginning of this sequence, that is, alcohol, tobacco, and marijuana.

Conclusions drawn from epidemiology and etiology indicate that prevention interventions should target individuals by at least the beginning of the adolescent period (middle or junior high school), although how early prevention efforts should begin is as yet unclear. Another implication from the etiology literature for prevention is that prevention programs should target the gateway substances of tobacco, alcohol, and marijuana. The recent increase in inhalant use and its potential role as a form of gateway drug use suggest that it should also be the focus

of prevention efforts. These and other conclusions drawn from etiology research provide useful information concerning the kind of drug abuse prevention program likely to be the most effective. Understanding the etiology of drug abuse also makes it easy to recognize why some prevention approaches have not succeeded.

Prevention Approaches for School Settings

Most of what is known about what works in preventing adolescent drug abuse comes from school-based prevention research. As indicated elsewhere (Botvin 1996; Botvin and Botvin 1992), school-based prevention efforts can be divided into four general approaches: (1) information dissemination, (2) affective education, (3) social influence, and (4) competence enhancement. This paper focuses primarily on the last two approaches, because the available evidence indicates that they are the most promising.

Information Dissemination

The main staple of conventional approaches to drug abuse prevention has been programs designed to disseminate information about drug use, pharmacological effects, and the adverse consequences of drug abuse. The underlying assumption of these approaches is that the problem of drug abuse is caused by a lack of knowledge about the dangers of using drugs. Correspondingly, it is assumed that drug abuse can be prevented by making individuals aware of the appropriate facts about drug abuse. It is hoped that adolescents, armed with these facts, will make a logical and rational decision not to smoke, drink, or use illicit drugs. Closely related to information dissemination approaches is the use of fear-arousal techniques or scare tactics to dramatize the dangers of drug abuse and increase motivation to avoid drugs.

Despite the widespread use of these approaches, studies testing the effectiveness of information dissemination or fear-arousal approaches have consistently shown that they do not work (Dorn and Thompson 1976; Goodstadt 1974; Kinder et al. 1980; Richards 1969; Schaps et al. 1981; Swisher and Hoffman 1975, pp. 49-62). These studies show that information dissemination approaches are effective in their efforts to increase knowledge and also frequently increase antidrug attitudes. However, they fall short where it counts most—having an impact on drug use behavior. This is not to say that knowledge is unimportant or irrelevant to prevention efforts. In fact, developmentally appropriate and personally relevant health information may indeed have a place in drug abuse prevention programs. Yet, it is clear that prevention approaches primarily designed to increase information are not effective.

Affective Education

Another popular approach to drug abuse prevention over the years is designed to enhance affective development. Affective education approaches were widely used during the 1960s and early 1970s. Typically, the focus of affective education approaches is on increasing self-understanding and -acceptance through activities such as values clarification and responsible decisionmaking; improving interpersonal relations by fostering effective communication, peer counseling, and assertiveness; and increasing students' abilities to fulfill their basic needs through existing social institutions (Swisher 1979). The results of evaluation studies testing affective education approaches have been as disappointing as information dissemination and fear-arousal approaches. Although affective education approaches, in some instances, have been able to demonstrate an impact on one or more of the correlates of drug use, they have not been able to affect *behavior* (Kearney and Hines 1980; Kim 1988).

Social Influence

Increases in our understanding of the etiology of drug abuse led to the recognition that social factors play a major role in the initiation and early stages of drug use. These social influences arise from the media, peers, and the family. The original research in this area was conducted by Evans and colleagues (Evans 1976; Evans et al. 1978) and focused on adolescent cigarette smoking. The prevention approach developed and tested by Evans was a major departure from previous approaches to tobacco, alcohol, and other drug abuse prevention. It is noteworthy not only because it was the first approach to produce an impact on behavior, but also because it contained several of the core components still used in the

most successful drug abuse prevention approaches, which are briefly described below.

Psychological Inoculation

The main emphasis of the prevention approach developed by Evans was a concept borrowed from McGuire's persuasive communications theory that is referred to as "psychological inoculation" (McGuire 1964, pp. 192-227; 1968, pp. 136-314). The underlying concept is analogous to that of inoculation used in infectious disease control. To prevent individuals from developing positive attitudes about smoking, drinking, or illicit drug use ("infection") from prodrug social influences ("germs"), it is necessary to expose adolescents to a weak dose of those germs in a way that facilitates the development of "antibodies" and thereby increases resistance to any future exposure to persuasive messages in a more "virulent" form. For example, from this perspective, cigarette smoking is conceptualized as resulting from exposure to social influences (persuasive messages) to smoke from peers and the media that are either direct (offers to smoke from other adolescents or cigarette advertising) or indirect (exposure to high-status role models who smoke).

Thus, a major part of the smoking prevention approach developed by Evans was designed to make students aware of the various social pressures to smoke they would likely encounter as they progressed through junior high school so they would be psychologically prepared (inoculated) to resist these influences. Although psychological inoculation was the conceptual centerpiece of this research, it has received less emphasis in more recent variations on the social influence model. Other components of the approach developed by Evans have assumed greater importance, although in a somewhat different form. These include demonstrations of techniques for effectively resisting various pressures to smoke, periodic assessment of smoking with feedback to students to correct the misconception that smoking is a highly normative behavior, and information about the immediate physiological effects of smoking.

Drug Resistance Skills

The research conducted by Evans and colleagues at the end of the 1970s created a sense of excitement and optimism that had been lacking for many years. After a decade of disappointing and frustrating research, there was finally evidence that prevention could work. This sparked a flurry of research activity by other research groups in the United States, Canada, Europe, and Australia. At this point, more research has been conducted with variations on the social influence approach to drug abuse prevention than possibly any other contemporary approach over the past 20 years (e.g., Arkin et al. 1981; Hurd et al. 1980; McAlister et al. 1979; Luepker et al. 1983; Perry et al. 1983; Telch et al. 1982; Donaldson et al. 1994; Ellickson and Bell 1990; Snow et al. 1992; Sussman et al. 1993).

One of the distinct differences that emerged during this time was an increased emphasis on teaching what has come to be referred to as "drug resistance skills" or "drug refusal skills." Students are taught the requisite information and skills to recognize, avoid, or respond to high-risk situations—situations in which they will have a high likelihood of experiencing peer pressure to use drugs. Students are taught not only what to say in response to a peer pressure situation (the specific content of a refusal message), but also how to say it in the most effective way possible. In addition, students are taught how to respond to influences from the media to use drugs, particularly how to resist the persuasive impact of advertising by recognizing the advertising appeals contained in ads and formulating counterarguments to those appeals.

Correcting Normative Expectations

Adolescents typically overestimate the prevalence of smoking, drinking, and illicit drug use (Fishbein 1977). Therefore, the third major component of the social influence approach to drug abuse prevention involves correcting normative expectations, that is, correcting the misperception that many adults and most adolescents use drugs. This is sometimes referred to as "normative

education" (Hansen and O'Malley 1996, pp. 161-192). Several methods have been used to modify or correct normative expectations. One method involves providing students with information concerning the prevalence rates of drug use among their peers either from national or local survey data so that they can compare their own estimates of drug use with actual prevalence rates. Another method involves having students participate in the prevention program to organize and conduct classroom, schoolwide, or local community surveys of drug use.

Using Peer Leaders

A characteristic feature of many prevention approaches based on the social influence model is the use of *peer leaders* as program providers. Peer leaders are selected because of their role as opinion leaders. They are individuals who appear to have high credibility with the participants in the prevention program. They are also leaders in the sense that they serve, to varying degrees, as program providers. In most studies, peer leaders have been older students, for example, 10th graders might serve as peer leaders for 7th graders; however, in some cases, peer leaders have been the same age as the participants and may even have been from the same class. The rationale for using peer leaders is that peers often have higher credibility with adolescents than do teachers or other adults. Peer leaders serve a variety of functions, including serving as discussion leaders, role models who do not use drugs, and facilitators of skills training by demonstrating the drug refusal skills being taught in these prevention programs.

Competence Enhancement (Life Skills Training)

Another effective drug abuse prevention approach emphasizes teaching general personal and social skills, either alone (Caplan et al. 1992) or in combination with selected components of the social influence model (Botvin et al. 1980; Botvin and Eng 1980; Botvin, Baker, Renick et al. 1984; Botvin, Baker, Botvin et al. 1984; Botvin et al. 1983; Pentz 1983, pp. 195-232; Schinke and Gilchrist 1983, 1984; Gilchrist and Schinke 1983, pp. 125-130; Schinke 1984, pp. 31-63; Botvin, Baker, Filazzola, and Botvin 1990). This second approach, referred to as the "competence enhancement" approach, is much more comprehensive than the information dissemination, affective education, or social influence approaches. Moreover, unlike affective education approaches that rely on experiential classroom activities, the competence enhancement approach is based on a solid foundation of research and theory.

The most extensive research on the competence enhancement approach to drug abuse prevention is the Life Skills Training program, which has been tested by the author's research group at Cornell during the past 16 years. Prior research on the causes of drug abuse guided the development of this prevention approach, and the classroom teaching techniques it uses are based on proven cognitive/behavioral skills training methods. The theoretical foundation for the Life Skills Training approach is based on social learning theory (Bandura 1977) and problem behavior theory (Jessor and Jessor 1977). Drug abuse is conceptualized as a socially learned and functional behavior, resulting from the interaction of social influences that promote drug use and intrapersonal factors that affect susceptibility to these influences.

Evidence from one study suggests that broad-based competence enhancement approaches may not be effective unless they also contain some resistance skills training material (Caplan et al. 1992). This may be necessary because such material includes a focus on antidrug norms and helps students apply generic personal and social skills to situations related specifically to the prevention of substance abuse. Thus, the most effective prevention approaches appear to be those that combine the features of the problem-specific social influence model and the broader competence enhancement model.

The primary aim of programs designed to teach life skills and enhance general competence is to teach the kinds of skills for coping with life that will have a relatively broad application. This contrasts with the social influence approach, which is designed to teach information, norms, and refusal skills with a *problem-specific* focus. Competence enhancement approaches, such as the Life Skills Training program, emphasize the application of general skills to situations directly related to drug use and abuse, such as the

application of general assertive skills to situations involving peer pressure to smoke, drink, or use other drugs. These same skills can be used for dealing with the many challenges confronting adolescents in their everyday lives, including but not limited to drug use. The following is a brief description of the content areas covered by the Life Skills Training program.

Drug Resistance Information and Skills

The Life Skills Training prevention model that the author and colleagues have tested incorporates aspects of the social influence approach that are intended to deal directly with the social factors that promote drug use. It also includes general self-management skills and social competence skills. Components from the social influence model include (1) teaching an awareness of social influences to use drugs, (2) correcting the misperception that everyone is using drugs and promoting antidrug norms, (3) teaching prevention-related information about drug abuse, and (4) teaching drug refusal skills.

Self-Management Skills

The Life Skills Training approach also involves teaching students a set of important skills for increasing independence, personal control, and a sense of self-mastery. This includes teaching students (1) general problemsolving and decisionmaking skills, (2) critical thinking skills for resisting peer and media influences, (3) skills for increasing self-control and self-esteem (such as self-appraisal, goalsetting, self-monitoring, and self-reinforcement), and (4) adaptive coping strategies for relieving stress and anxiety through the use of cognitive coping skills or behavioral relaxation techniques.

General Social Skills

Drug use behavior is learned through modeling and reinforcement and is influenced by cognition, attitudes, and beliefs. To enhance social competence, students in the Life Skills Training program are taught a variety of general social skills. This includes teaching (1) skills for communicating effectively (such as how to avoid misunderstandings by being specific, paraphrasing, and asking clarifying questions), (2) skills for overcoming shyness, (3) skills for meeting new people and developing healthy friendships, (4) conversational skills, (5) complimenting skills, and (6) general assertiveness skills. These skills are taught through a combination of instruction, demonstration, feedback, reinforcement, behavioral rehearsal (practice during class), and extended practice (outside of class) through behavioral homework assignments from the interplay of social and personal factors.

Most of the prevention studies that have used this approach have focused on seventh graders. However, some studies have been conducted with 6th graders (Kreutter et al. 1991), and one was conducted with 8th, 9th, and 10th graders (Botvin et al. 1980). Program length has ranged from as few as 7 sessions to as many as 20 sessions. Some of these prevention programs were conducted at a rate of one class session per week, whereas others were conducted at a rate of two or more classes per week. Most of the studies conducted so far have used adults as the primary program providers. In some cases these adults were teachers, and in other cases they were outside health professionals such as project staff members, graduate students, or social workers. Some studies have included booster sessions as a means of preserving initial prevention effects.

Target Population of Prevention Research

Research concerning the etiology of drug abuse and adolescent development indicates that a critical time for experimentation with tobacco, alcohol, and illicit drugs occurs at the beginning of adolescence. For this reason, most of the drug abuse prevention research studies have involved middle or junior high school students. The primary year of intervention for these studies has generally been the seventh grade. However, some studies have included students as young as fourth, fifth, and sixth grades (Donaldson et al. 1994; Shope et al. 1992; Donaldson et al. 1995; Flynn et al. 1992). There is general agreement that at least some of the risk factors for drug abuse may have their roots in early childhood, arguing for beginning interventions at a younger age. However, a major concern of prevention researchers testing the efficacy of one or more intervention approaches is that *base rates* of drug use are typically quite low prior to adolescence.

To adequately test the impact of prevention programs on drug use, it is necessary to select an age range that not only makes sense from an intervention perspective, but also includes individuals who are old enough to begin using drugs in sufficient numbers for researchers to detect statistically significant differences between treatment and control groups. Generally speaking, the base rates of even the most prevalent forms of drug use are too low prior to seventh grade for meaningful prevention research.

Findings From Evaluation Studies

Short-Term Effects on Smoking

Evaluation studies have tested the efficacy of drug abuse prevention approaches almost exclusively in terms of their impact on tobacco, alcohol, and marijuana use, because the use of these substances has the highest prevalence rates and occurs at the beginning of the developmental progression of drug use. Although the largest number of studies have focused primarily on cigarette smoking, many studies have also tested the impact of prevention approaches on alcohol and marijuana use. Both the social influence and competence enhancement approaches have produced impressive initial reductions in drug use when compared with controls, who received either no treatment or an alternative treatment.

The effectiveness of social influence approaches has been documented in a number of studies (Arkin et al. 1981; Hurd et al. 1980; McAlister et al. 1979; Luepker et al. 1983; Perry et al. 1983; Telch et al. 1982; Donaldson et al. 1994; Ellickson and Bell 1990; Snow et al. 1992; Sussman et al. 1993). The results of these studies show a reduction in the rate of smoking by between 30 and 50 percent after the initial intervention. Several studies have demonstrated reductions in the overall *prevalence* of cigarette smoking among the participating students for both experimental smoking (less than one cigarette per week) and regular smoking (one or more cigarettes per week). The social influence approach has also been found to reduce smokeless tobacco use (Sussman et al. 1993).

Studies testing the efficacy of competence enhancement approaches have also found significant reductions in cigarette smoking relative to controls (Botvin et al. 1980; Botvin and Eng 1980; Botvin, Renick, Filazzola et al. 1984; Botvin, Baker, Botvin et al. 1984; Botvin et al. 1983; Pentz 1983; Schinke and Gilchrist 1983, 1984; Gilchrist and Schinke 1983, pp. 125-130; Schinke 1984, pp. 31-63; Botvin et al. 1990). These studies demonstrate that generic skills training approaches to drug abuse prevention can cut cigarette smoking from 40 to 75 percent. Data from two studies using the Life Skills Training program (Botvin and Eng 1982; Botvin et al. 1983) show that it can reduce regular smoking (one or more cigarettes a week) at the 1-year followup evaluation by 56 to 66 percent without additional booster sessions. With booster sessions, these reductions have been as high as 87 percent (Botvin et al. 1983). Moreover, initial reductions of an equal magnitude have also been reported for regular smoking (Botvin et al. 1983; Botvin and Eng 1982).

Short-Term Effects on Alcohol and Marijuana Use

Studies testing the efficacy of the social influence approach on alcohol and marijuana use have reported reductions of roughly the same magnitude as for cigarette smoking (Ellickson and Bell 1990; McAlister et al. 1980; Shope et al. 1992). Several studies also provide evidence for the efficacy of the competence enhancement approach on the use of alcohol (Botvin, Baker, Renick et al. 1984; Botvin, Baker, Botvin et al. 1984; Pentz 1983, pp. 195-232; Botvin, Baker, Dusenbury et al. 1990; Epstein, Botvin et al. 1995) and marijuana (Botvin, Baker, Botvin et al. 1984; Botvin, Baker, Dusenbury et al. 1990; Epstein, Botvin, Díaz et al. 1995). In general, prevention effects have been the strongest for cigarette smoking and marijuana use and the weakest and the most inconsistent across studies on alcohol use.

Long-Term Effects

Followup studies indicate that the prevention behavioral effects of these approaches have a reasonable degree of durability. Social influence

approaches have produced reductions in smoking that last for up to 4 years (Luepker et al. 1983; Telch et al. 1982; Sussman et al. 1993; McAlister et al. 1980). One multicomponent study found prevention effects for up to 7 years (Perry and Kelder 1992). However, the results of most long-term followup studies indicate that prevention effects are typically not maintained and last only 1 or 2 years (Murray et al. 1988; Flay et al. 1989; Bell et al. 1993; Ellickson et al. 1993). This has led to concern by some that school-based prevention approaches may not be powerful enough to produce lasting prevention effects (Dryfoos 1993, pp. 131-147). On the other hand, others have argued that the prevention approaches tested in these studies may have had deficiencies that undermined their long-term effectiveness (Resnicow and Botvin 1993).

Long-term followup data (Botvin, Baker, Dusenbury et al. 1995) from one of the largest school-based substance abuse prevention studies ever conducted found reductions in smoking, alcohol, and marijuana use 6 years after the initial baseline assessment. This randomized, controlled field trial involved nearly 6,000 seventh graders from 56 public schools in New York State. After random assignment to prevention and control conditions, students in the prevention condition received the Life Skills Training program during the seventh grade (15 prevention sessions) with booster sessions in the eighth grade (10 sessions) and ninth grade (5 sessions). No intervention was provided during the 10th to 12th grades. Followup data were collected by survey in class, by mail, and/or by telephone at the end of the 12th grade and beyond for those students not available for the school survey.

The prevalence of cigarette smoking, alcohol use, and marijuana use for the students in the prevention condition was as much as 44 percent lower than for controls. Significant differences, up to 66 percent relative to controls, were also found with respect to the prevalence of polydrug use (i.e., students using all three gateway drugs) during the past week. The results of this study suggest that, to be effective, school-based interventions must be more comprehensive and have a stronger initial dosage than most studies that have used the social influence approach. Prevention programs also must include at least 2 additional years of booster intervention and be implemented in a manner that is faithful to the underlying intervention model.

Factors Affecting Long-Term Effectiveness

The failure to find long-term prevention effects may have to do with factors related to either the type of intervention tested in these studies or the way these interventions were implemented. The absence of long-term prevention effects in some studies should not be taken as an indictment of all school-based prevention programs. According to Resnicow and Botvin (1993), there are several reasons why durable prevention effects may not have been produced in many long-term followup studies: The length of the intervention may have been too short (i.e., the prevention approach was effective, but the initial prevention "dosage" was too low to produce a long-term effect); booster sessions were either inadequate or not included (i.e., the prevention approach was effective, but it eroded over time because of the absence or inadequacy of ongoing intervention); the intervention was not implemented with enough fidelity to the intervention model (i.e., the correct prevention approach was used, but it was implemented incompletely, improperly, or both); and the intervention was based on faulty assumptions, was incomplete, or was otherwise deficient (i.e., the prevention approach was ineffective).

Generalizability to Minority Youth

Most prevention research has been conducted with predominantly white, middle-class, suburban populations. Racial/ethnic minority youth have been underrepresented in prevention evaluation studies. Consequently, relatively little is known concerning the etiology of drug abuse among minority youth. However, several studies indicate that there is substantial overlap in the factors promoting and maintaining drug use among different populations (Bettes et al. 1990; Botvin, Baker, Botvin et al. 1993; Botvin, Epstein, Schinke et al. 1994; Botvin, Goldberg, Botvin et al. 1993; Epstein et al. 1994). This suggests that prevention approaches found to be effective with one population should also be effective with others. Over the past decade, this hypothesis has been investigated in a number of studies that tested the generalizability of

prevention approaches previously found to be effective with white youth.

Studies testing the efficacy of Life Skills Training have shown that it is effective in decreasing drug use, intentions to use drugs, and risk factors associated with drug use. Qualitative research with parents, teachers, and students found high acceptance and perceived utility for this prevention approach among black and Hispanic populations. Where appropriate, the language, examples, and behavior rehearsal scenarios were modified to increase cultural sensitivity and relevance to each of the target populations, but no modifications were made to the underlying prevention approach that focused on teaching generic personal and social skills, anti-drug-use norms, drug refusal skills, and prevention-related knowledge and information.

To date, most of the research with minority youth has involved cigarette smoking. These studies have consistently shown that the Life Skills Training approach can result in less cigarette smoking relative to controls for inner-city Hispanic youth (Botvin, Dusenbury, Baker et al. 1989; Botvin et al. 1992) and African-American youth (Botvin, Batson, Witts-Vitale et al. 1989; Botvin and Cardwell 1992). Followup data with Hispanic youth have demonstrated the continued presence of lower levels of cigarette smoking up to the end of the 10th grade (Botvin, Schinke, Epstein, and Díaz 1994). Several recent studies show that drug abuse prevention approaches such as Life Skills Training can also reduce alcohol and marijuana use among minority populations (Botvin, Schinke, Epstein, and Díaz 1994; Botvin, Schinke et al. 1995), and that tailoring the intervention to the culture of the target population can enhance its effectiveness (Botvin, Schinke et al. 1995).

Program Providers

Considerable variation exists among the individuals responsible for implementing school-based drug abuse prevention programs. Some programs have been implemented by college students, others by members of the research project staff, and still others have used classroom teachers to implement the prevention programs. It has generally been assumed that peer leaders play an important role in social influence approaches. Same-age or older peer leaders have been included in nearly all of the studies testing social influence approaches and in some of the studies testing the personal and social skills training approaches (competence enhancement). In general, evidence supports the use of peer leaders for this type of prevention strategy (Arkin et al. 1981; Perry et al. 1983).

Although peer leaders have been used successfully to varying degrees in these programs, they usually assist adult program providers and have specific and well-defined roles. The primary providers in most of these studies have been either members of the research project staff or teachers. There is also evidence to suggest that peer-led programs may not be uniformly effective for all students. For example, the results of one study suggest that although boys and girls may be equally affected by social influence programs conducted by teachers, girls may be more influenced by peer-led programs than are boys (Fisher et al. 1983).

Research studies with competence enhancement approaches have shown that they can be successfully implemented by project staff members, peer leaders, and classroom teachers (Botvin and Botvin 1992); however, not all adult program providers are equally effective (Botvin, Baker, Filazzola et al. 1990). Additional research is needed to identify the characteristics of the most effective providers as well as the optimal match between the characteristics of providers and prevention program participants.

Project DARE (Drug Abuse Resistance Education), which is conducted by police officers, is on the other end of the program provider spectrum from programs using peer leaders. DARE is without a doubt one of the best known applications of the social influence model. Project DARE was initially developed by the Los Angeles Police Department and based on research conducted at the University of Southern California. The fact that it has been embraced by police departments throughout the country has provided a natural dissemination system unparalleled by other prevention programs. Being a prevention program that is implemented by police officers and supported by law enforcement agencies around the country makes DARE unique and has

no doubt contributed to its adoption by a large number of schools. According to news accounts, DARE is said to be used in approximately 60 percent of the elementary school classrooms in America.

Yet, despite its acknowledged success in promoting awareness of drug abuse and gaining adoption by more schools across the country than any other program, DARE has been plagued by disappointing evaluation results and a surprising amount of negative news coverage. According to a major meta-analysis of studies evaluating the DARE program, it is less effective than other social influence approaches and has produced only minimal effects on drug use behavior (Ennett et al. 1994). Because DARE has much in common with other prevention approaches based on the social influence model, its poor evaluation results are difficult to explain. In view of the fact that the main difference between similar programs showing reductions in drug use and DARE is the program provider, a logical conclusion is that the absence of strong prevention effects may be related more to the program provider than the program itself. The rationale for using peer leaders as program providers has been that peers have greater credibility regarding lifestyle issues than parents, teachers, or other adults who are viewed as authority figures. This is especially true during a developmental period when individuals, particularly those who are at greatest risk for engaging in deviant behaviors, are increasingly likely to rebel against authority figures. Because a police officer is the ultimate symbol of authority in our society, it is reasonable to expect them to have lower credibility with high-risk children and adolescents and, correspondingly, to be less effective as a drug abuse prevention program provider. Still, the effectiveness of police officers as program providers has not been directly tested, so it remains an open question in need of empirical clarification.

Summary and Conclusion

This chapter has focused on drug abuse prevention efforts in school settings. Schools are a natural and convenient site for conducting drug abuse prevention programs. Increasingly, educators are coming to recognize that promoting health and preventing drug abuse are vitally important both to the general well-being of students and to the achievement of primary educational objectives. When the standard of effectiveness is deterrence of drug use, prevention approaches that rely on providing students with information about the adverse consequences of using drugs have been consistently found to be ineffective. Similarly, efforts to promote affective development through unfocused, experiential activities have also been found ineffective.

The only prevention approaches that have been demonstrated to effectively reduce drug use behavior are those that teach junior high school students social resistance skills and antidrug norms, either alone or in combination with teaching generic personal and social skills. Both approaches emphasize skills training and deemphasize the provision of information concerning the adverse health consequences of drug use. These approaches have been shown to work with different program providers and different target populations, including racial/ethnic minority youth. Despite generally impressive initial prevention effects, it is evident that without booster sessions, these effects decay over time. Thus, to produce lasting prevention effects, it is necessary to have ongoing prevention activities throughout the early adolescent years and perhaps until the end of high school.

The field of drug abuse prevention has advanced considerably in the past decade and a half. Yet, despite the promise offered by existing school-based approaches, additional research is needed to further refine current prevention models to optimize their effectiveness and increase our understanding of how they work. However, for the first time in the history of drug abuse prevention, evidence from a number of rigorously designed evaluation studies shows that specific school-based prevention models are effective. It is now incumbent on health care professionals, educators, community leaders, and policymakers to move expeditiously toward wide dissemination and utilization of these approaches. It is equally important for private and governmental agencies to provide adequate funding for the important research necessary to further refine existing prevention models and to increase our understanding of the causes of substance abuse.

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Invited Paper
Reconnecting Youth: An Indicated Prevention Program

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Introduction

This paper reflects the past 12 years of extensive work by the Reconnecting At-Risk Youth Prevention research team. Much of this material has been synthesized from *Reconnecting Youth: A Peer Group Approach to Building Life Skills* (Eggert, Nicholas, and Owen 1995). This work has involved more than 2,000 youth, both high-risk and typical high school students. After four program evaluations, the author and colleagues have demonstrated that prevention can work. The Reconnecting Youth program was proven effective in helping high-risk youth improve their achievement in school, reduce their drug involvement, manage their depression and/or aggression, and decrease their suicidal behaviors. In addition, the results show that improvement in personal control and school bonding occurred (Eggert, Thompson, et al. 1995; Eggert et al., *Preventing adolescent,* 1994; Thompson et al., n.d.).

This paper, which details Reconnecting Youth as an indicated (see below) prevention program, is directed to professional school personnel—teachers, counselors, school nurses, and other human service professionals—who work directly with high-risk youth. It also speaks to policymakers—principals, administrators, school board members, and legislators—whose job it is to select effective programs for high school dropout and drug prevention programs.

This paper addresses what is meant by *indicated* prevention and then describes what has been learned from high-risk youth in schools. This information provides a profile of the students for whom Reconnecting Youth was designed. The paper also includes a brief synopsis of the prevention goals, key elements, unique features, and theoretic framework of the Reconnecting Youth program. The core program element, the Personal Growth Class, is detailed and followed by a discussion of issues to be considered before adoption and implementation of the program. The paper concludes with evidence of how and why the program helps high-risk youth achieve the program goals and enhance their personal and social protective factors.

The goals of this paper are to provide

- An understanding of what indicated prevention programs are and what makes Reconnecting Youth a model of such programs
- A broader understanding of what was learned about high-risk youth's disconnections, vulnerabilities, and strengths and how this knowledge informed the overall structure, activities, and implementation processes in Reconnecting Youth
- A grasp of the key features of Reconnecting Youth—how it works and the evidence supporting its effectiveness
- Guidance for those who may be considering implementation of Reconnecting Youth
- A commitment to consider initiating or supporting school-based indicated prevention efforts.

Indicated Prevention: What It Means

Prevention is defined as either a strategy that reduces the likelihood of health problems ever occurring or a process that stems the progression of a health problem from early warning signs to a diagnosable disease or disorder. A prevention program is a set of coordinated approaches

regarded as necessary to counteract the multiple factors involved in attempting to reduce adolescent problem behaviors.

A New Public Health Model of Prevention

Prevention approaches traditionally were defined as primary, secondary, and tertiary. Gordon (1987, pp. 20-26) proposed a more precise, less confusing prevention scheme that was adapted by the Institute of Medicine (1994). This new model includes a continuum of *universal*, *selective*, and *indicated* prevention approaches. Each type of prevention intervention has a different focus and mission. When applied to the prevention of drug use/abuse in schools, the key points are as follows:

- *Universal* prevention programs benefit everyone in the school by providing needed education. The overall mission is to keep students from ever initiating drug use and to keep the school community drug-free.
- *Selective* prevention programs benefit known at-risk groups. One implication is that these groups must be identified for the delivery of prevention efforts (Kumpfer and Alvarado 1997). The overall mission is to impede the onset of drug use in known at-risk groups.
- *Indicated* prevention programs benefit identified high-risk individuals who already show signs of drug involvement (Eggert et al., *Preventing adolescent,* 1994; *A prevention,* 1994; Powell-Cope and Eggert 1994, pp. 23-51). The mission of indicated prevention is to stem the progression and reduce the frequency of drug use among these youth. The school population must be screened in order to find the individuals who are at risk to provide them with a suitable prevention program.

Universal prevention programs are insufficient as vulnerability to drug use increases to higher risk levels (Institute of Medicine 1994). When there are increasing numbers of risk factors and diminishing protective factors operating in a youth's life, a prevention program that is more comprehensive and of greater duration is required. An important principle, however, is that indicated prevention programs on a comprehensive level are not necessary for most youth. Unlike universal prevention programs, where all students in a school or classroom receive the prevention intervention, indicated prevention programs are best reserved for those in greatest need, such as those already involved with drugs. In addition, indicated prevention programs require an understanding and assessment of a student's risk and protective factors related to drug abuse. To be most effective, the prevention program is designed to directly influence these individual risk and protective factors.

Reconnecting Youth fits the definition of an indicated prevention program for particular high-risk individuals; that is, those on a high school dropout trajectory. This is because the intended participants demonstrate increased vulnerability to both drug involvement and suicide risk. These are students in need of a stronger "dose" of prevention interventions.

Characteristics of High-Risk Youth

The author and coworkers conducted a series of descriptive ethnographic and survey studies to enhance their understanding of high-risk youth. Identifying causal risk factors and their linkage to school dropout were critical challenges in the beginning. Accurately identifying the youth thought to be at highest risk of school dropout was another.

In repeated studies, the vulnerabilities for high-risk youth (Eggert and Herting 1993; Eggert and Nicholas 1992; Thompson et al. 1994) pointed to significant differences between high-risk youth and "typical" high school students. High-risk youth had more negative school experiences, greater drug involvement, more emotional distress (anger, depression, stress, suicidal behaviors), more deviant peer bonding, greater family strain, and less social support provided by school teachers, and other special persons in their social networks. The factors exerting the greatest negative influences on adolescent drug involvement included school strain, family strain, and deviant peer bonding (Randell et al., in press). Key predictors of suicide ideation included depression, drug involvement, family distress, and the likelihood of dropout (Thompson et al. 1994).

The following accounts are from high-risk youth (Eggert 1996*b*). They represent approximately 25 percent of the Nation's youth and 7 million of those age 10 to 17 years. Their growing numbers in high schools and the challenges they present were the motivating factors for determining the requirements of an indicated prevention program.

For many high-risk youth, negative school experiences are longstanding:

> *"School has always been awful for me. I totally hate it. I'm always getting Fs and I hate that! The pressures at school don't ever stop! If you want to know the truth, I think a lot about dropping out. People are always picking on me and I always feel stupid."* (10th-grade male)

> *"I've always been a social outcast at school, I've never had friends here. I don't know why. Maybe it's because I'm not pretty or anything. I don't know how to meet people . . . . I can do it when we're smoking and if I get stoned, but then they take advantage of you."* (9th-grade female)

Drug involvement, by the students' own admission, hurts more than it helps and is out of control for high-risk youth:

> *"So many people in high school are using drugs. Most athletes and smart people only drink alcohol, but many kids do all sorts of drugs. The people who come to school stoned or drunk every day are in their own world. It's sad, because up until adulthood we are so vulnerable, and are just figuring out who we are and what talents and qualities we have. And when people put you down and don't encourage you, then you don't believe in yourself."* (12th-grade male)

> *"Drugs helped me and they hurt me. Those times I couldn't handle all the stress, they helped me escape from the pressure. But in the long run drugs hurt me more than helped me. I kept using more and more and now it's out of control. I use to escape from everything. Now, I'm trying to stop, but I can't."* (11th-grade female)

Drug involvement and poor school experiences are linked with depression and suicidal behaviors. In their own words, youth make these connections:

> *"Drugs just get you deeper and deeper into depression until the hole gets so deep you can't see out. When all you know is drugs, when all you do is to be deceitful and manipulative, when that's all you do, it's hard . . . it's hard to stop doing it."* (11th-grade female)

> *"Shortly after I quit school I tried to kill myself. I felt very lonely and afraid of what was happening to me. Sometimes I felt completely separate from everybody else, and I started to wonder if genetically something was wrong with me. Maybe the ability to feel good had somehow been left out of me, or eliminated totally somehow . . . . I knew I couldn't keep facing the pain, the fear . . . . I'd either go crazy or die."* (12th-grade male)

Problems with peers and parents are also common. Characteristic of more than two-thirds of the youth, negative peer influences, family distress, and social disorganization, are illustrated below:

> *"My friends . . . we are helping each other because none of us like our parents. Most of us have run away before . . . we manage!"* (9th-grade female)

> *"It's been really rough right now. My girlfriend is 16. She has mass family problems . . . and her problems are totally overwhelming for her and for me. It's like a never-ending depression."* (12th-grade male)

> *"My parents are splitting up, you know, getting divorced. My father used to beat up my mother and stuff and now there's a court order saying he can't come near any of us. There's more stress at home than I can manage. I'm the oldest, and right now everyone is totally out of control. We're stealing from each other and from our mother, and everyone is fighting and yelling."* (11th-grade female)

Overview of the Reconnecting Youth Indicated Prevention Program

Achieving the central aims of Reconnecting Youth meant (1) targeting potential dropouts, one of the most elusive and highest risk groups; (2) testing theory-based interventions that focus on the multiple risk factors and supporting the assets of these high-risk students; and (3) integrating these interventions into high schools whose culture is not necessarily friendly toward research.

The Program Goals

Risk reduction and resiliency enhancement (Hawkins et al. 1992) are key objectives used in achieving the indicated prevention program goals in Reconnecting Youth (Eggert, Nicholas, and Owen 1995). This means focusing strategies on the individual or environmental risk factors linked with the co-occurring problem behaviors of poor school performance, drug involvement, and suicide risk behaviors. The program has the following three central risk-reduction goals:

1. *Decreased school deviance*—reflected by decreased truancy, increased GPA (grade point average) across all classes, and increased credits earned toward graduation
2. *Decreased drug involvement*—reflected by decreased frequency of alcohol and other drug use, drug use control problems, and adverse drug use consequences
3. *Decreased emotional distress*—reflected by decreased depression, aggression, and suicidal behaviors.

Specific risk-reduction objectives that support these goals include:

- To change personal risk factors such as impulsive decisionmaking and actions through skills training in personal control strategies and interpersonal communication
- To decrease related interpersonal and school risk factors (primarily deviant peer bonding and lack of school bonding) through enhancing positive peer-group support and teacher support.

Specific objectives that focus on enhancing resiliency include the following:

- To increase the youths' personal resources, including enhancing a strong sense of self-worth, a belief in one's ability to handle life's problems, and a positive view of the future (personal protective factors) (Powell-Cope and Eggert 1994, pp. 23-51)
- To change social or environmental protective factors, including surrounding the youth with a network of caring and supportive friends and family, and enhancing positive school experiences and social support from favorite teachers (Powell-Cope and Eggert 1994, pp. 23-51; Eggert et al., *A measure,* 1994), from the school, and from parents.

The objectives are aimed at reducing risks and enhancing resiliency, not just for the youth but also for their networks of close friends, family, school, and community (Eggert and Parks 1987; Hansen 1992; Hawkins et al. 1992). Focusing on both risk and protective factors enhances decreased drug involvement (Eggert and Herting 1991; Eggert et al. 1990; Eggert et al., *A prevention,* 1994; Eggert et al., *Preventing adolescent,* 1994) and reduced suicide potential (Eggert et al., *Reducing suicide,* 1995).

Theoretic Framework

The framework for Reconnecting Youth is a social-network-support model (Eggert 1987, pp. 80-104; Eggert and Herting 1991). This framework explicitly embodies the idea that any student's drug involvement and school performance develop and are maintained within a social context. If change in these behaviors is desired, interventions must occur and take into account this social context. In Reconnecting Youth, this context comprises a social network component (the school community, including the students' parents or guardians); the social support processes (the relations between the key individuals within the social network); and the desired outcomes (increased school performance, reduced drug involvement, and decreased emotional distress).

Especially important for bringing about change are the social support processes, including school network relations, family relations, and the

teacher-student and peer-to-peer interpersonal relationship ties. Through these interpersonal relationships, the social support is delivered and received by the students. This social support is characterized by "expressive support," in terms of acceptance and belonging, and "instrumental support," in terms of skills training. Expressive and instrumental support motivate and influence changes toward program goal achievement.

Reconnecting Youth is designed to be high school-based and is grounded in a partnership model among youth, parents, school personnel, and prevention practitioners in the community.

The program is unique in several important ways, including the following:

- It is a comprehensive and sustained indicated prevention program.
- It has a psychoeducational framework that integrates small-group work and life skills training within a social network support system.
- It is delivered by trained school teachers capable of creating a sustaining positive peer-group support to counteract negative peer influences on truancy and using drugs.
- It is expressly designed to modify risk factors linked with adolescent drug involvement such as truancy, poor school performance, depression, aggression, suicidal behaviors, and deviant peer bonding.
- It is expressly designed to enhance personal and social protective factors such as self-esteem, personal control, school bonding, and family support.
- It is grounded in a partnership model among students, school personnel, parents, and prevention practitioners/researchers.

Reconnecting Youth is designed to reach high-risk youth who are not having a successful school experience. The intended participants are potential school dropouts in grades 9 through 12. Students identified as potential school dropouts are invited to participate in the program. The message is a strong appeal to join; it is an invitation to "drop into school" rather than dropping out. From the outset, the students are motivated and encouraged to benefit from the program in specific ways—at school, at work, with friends, and at home—by developing a greater sense of personal control, supportive communication skills, adaptive coping behaviors, and improved interpersonal relationship skills. In other words, they can belong and help themselves and others succeed at school.

Reconnecting Youth integrates four key elements into the school environment.

1. *The Personal Growth Class (PGC)*—The core element, PGC is structured as an elective course in the overall curriculum. It is conducted in daily, hour-long class sessions during regular school hours for a full semester (typically 90 days). An optional second semester program is currently being tested for its efficacy in preventing relapse and promoting continued growth. PGC is taught by specially selected and trained high school teachers (or another school-based staff member such as a counselor, nurse, or psychologist). The teacher-to-student ratio is 1:10 to 1:12.
2. *School Bonding Activities Component*—This element focuses on social, recreational, and school activities. Interventions are designed to reconnect students to school- and health-promoting activities that address a student's need for fun activities as an alternative to drug involvement, loneliness, or depression.
3. *Parent Involvement Component*—Parents are important partners in Reconnecting Youth. They are essential for providing support at home for day-to-day life skills learned in PGC. The PGC teacher contacts parents to take the first step in establishing the partnership relationship and to enlist their support in helping their child make important changes by reinforcing the program goals in appropriate ways at home. Currently, a separate Parents as Partners intervention component is being tested for its efficacy in enhancing the effectiveness of PGC (Eggert 1996*a*).
4. *School Crisis Response System*—A school-based crisis response plan was established because of the feelings of depression and suicidal behaviors evidenced by many of the high-risk youth. This element provides

guidelines for classroom teachers and other school personnel for recognizing the warning signs and helping suicidal youth.

The school activities component, parent involvement, and crisis response plan all foster the development of a schoolwide network of support. These elements help the high-risk youth sustain the desired behavioral changes fostered in PGC and apply them at school and at home.

The Personal Growth Class Model

The PGC component is grounded in a psychoeducational model. It is unique in that it adapts and integrates the following previously tested approaches:

1. A peer-group counseling model designed to intervene with delinquent youth (*Positive Peer Culture* by Vorrath and Brendtro 1995).
2. An adolescent life skills training approach (*Life Skills Counseling With Adolescents* by Schinke and Gilchrist 1984).

Group work and skills training are vitally linked. Skills developed in four areas are applied to the three program goals within a positive group context (see figure 1). Through this positive group experience, students give and receive support in the form of acceptance and caring. They also help each other with life skills training applied to their personal issues.

The Group Work Submodel

Central to the effectiveness of PGC is a positive group experience, because social support is the motivating force for behavior change. The aim is to provide each youth with support from the leader and other PGC participants, making socialization a positive experience. Group work is characterized by group belonging and acceptance for all members and a heavy dose of expressed support and help from the leader and all group members.

A positive peer group is the key to the success of PGC. The group leader fosters the development of the positive peer-group culture by consistently demonstrating or modeling care and concern in interactions with the group and with each student. In this way, the group members learn to care about each other, and a climate for the desired behavioral changes is established.

The group leader is the "heartbeat" of the program, establishing group norms that reflect care and concern. During the invitation process and throughout the group sessions, it is the leader's task to ensure that each student feels welcomed,

1. Self-Esteem Enhancement (SE)

- Use skills for appreciating self (positive self-talk, positive actions).
- Support positive self-esteem in others.
- Apply SE skills to program goals.

2. Decisionmaking (DM)

- Use STEPS decisionmaking process.[2]
- Set goals for improvement (desirable, realistic, specific, and measurable).
- Celebrate accomplishments.
- Apply DM steps to program goals.

3. Personal Control (PC)

- Attend to stressors and stress responses.
- Use healthy coping strategies for handling stress, anger, and depression.
- Apply PC skills to program goals.

4. Interpersonal Communication (IPC)

- Express care and concern for others.
- Listen carefully and give feedback.
- Share thoughts and feelings tactfully.
- Give and receive constructive criticism.
- Apply IPC skills to program goals.

FIGURE 1. *Key concepts of the PGC personal and social life skills*

[2]STEPS: Stop, Think, Evaluate, Perform, Self-Praise

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experiences a strong sense of belonging, and has a good experience in the group. Each student can develop trust in this culture, become motivated to change, internalize the program goals and key concepts, acquire and practice key life skills, and apply these skills in other classes at school and in life situations at home and at work.

Group work in PGC follows a predictable sequence of stages—from early, to middle, to late (see figure 2). Accompanying these stages also are predictable phases through which the group progresses, such as the following:

- *Forming and storming* in the early stage of PGC—Ground rules are negotiated and established by the group and then tested as the students become more comfortable.
- *Norming and working* in the middle stage—The students develop a common sense of purpose after "storming" and evidence the group norms and adopted behavior changes.
- *Working and ending* in the late stage—The group reaches "maturity" during this stage, working on applying behavioral changes and preparing for life without the PGC group.

The Life Skills Training Submodel

While the group work submodel provides the critical foundation and "glue" for making PGC work, key behavior changes would be unlikely without the personal and social life skills training. The life skills training provides PGC students with the building blocks they need to achieve the program goals. It also provides new ways of thinking, feeling, and behaving and creates opportunities to apply these new skills to their current problems, concerns, strengths, and successes.

In life skills training, leaders motivate, coach, reward, and reinforce. The leader's challenge is to make the training relevant and fun, for these are high-risk youth who reject traditional modes of learning. The leader also invites and encourages students to get back on track when they "slip." The goal is to prevent relapse into self-destructive or group-destructive behaviors. Another leader task is to help students carry the skills they learn in PGC into other classes, friendships, family, and work relationships.

Life skills training in PGC follows a sequence of motivating the student to become involved, then ensuring that the student is competent in a particular skill before expecting him or her to apply it to real-life situations. The four sequential stages are

- Motivational reparation
- Skills-building
- Skills practice and application
- Skills transfer.

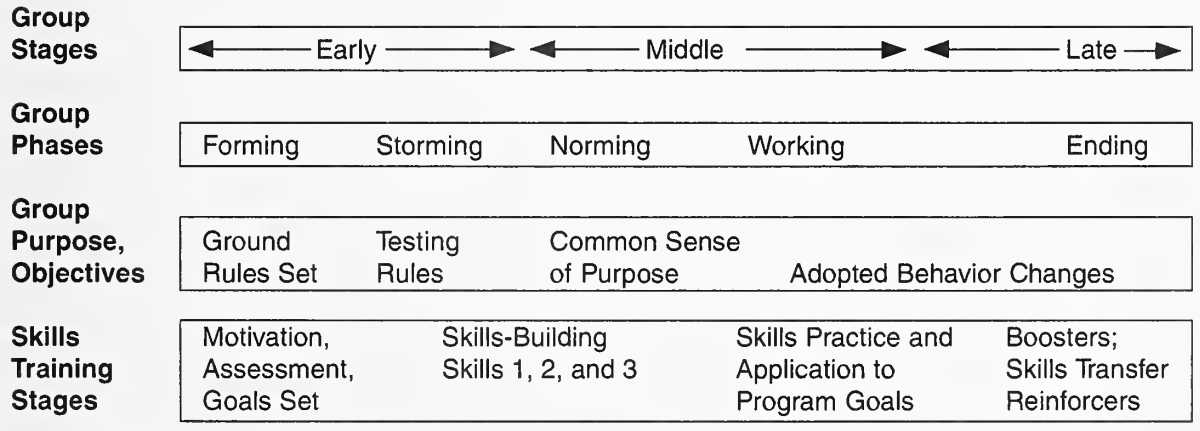

FIGURE 2. *Linking group development and skills training stages*

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The mode is to learn it, practice it, apply it, report back in the group on how it worked, and then get support, positive reinforcement, and praise.

Integrating the Group Work and Skills Training Submodels

Teaching PGC is both art and science. The art is in the process of integrating the skills training and group counseling submodels. The science is in the framework, content, and sequencing of the group stages and skills training.

Integrating skills training within a PGC group is unique because only the objectives and key concepts of each lesson are standardized. The examples and situations used for skills-building and application must come from the individual student's experiences and be developmentally appropriate for adolescents and multicultural groups.

PGC group work, life skills training, and monitoring are combined to achieve the following specific purposes:

- Group support and caring to enhance a feeling of acceptance and belonging
- Life skills training to enhance personal and social protective factors
- Monitoring to help youth gain awareness of their need for behavior change and chart their progress toward success.

After developing a supportive group environment and acquiring basic life skills, the students practice these life skills by addressing their real-life problems. Boosters, or activities that reinforce understanding, use, and competency of the new skills, are promoted both within and beyond the PGC group. Cross-cultural understanding and acceptance are prominently featured and promoted. By using the students' real-life problems, beliefs, and values, PGC promotes cultural sensitivity in multicultural groups. Table 1 provides the organization and examples of group skills training units.

The Daily PGC Experience

A daily agenda helps to integrate group work and skills training. At the beginning of the class, the teacher starts with a "check-in" to monitor and assess each student, then leads into "bring 'n' brag," during which students are encouraged to report on successes. This is where the norm of support—praising steps taken toward minigoals and program goal achievement—is exercised. The teacher asks if anyone wants group support and problemsolving time for a personal issue, which leads into a preview of the training focus for the day. Once the leader has an idea of the students' issues, he or she finesses the relationship between issues and the skills-building and application objectives for the day. The students help set the agenda and take turns posting it on a flipchart, which helps focus the group work and group time.

The Anti-Drug-Use Message

In PGC, students share their feelings about many personal problems, including drug use and no drug use. Two key concepts are that problems are an opportunity for growth and that students can improve with the help of their friends. Many students already understand that their personal and school problems are linked with drug involvement. The PGC teacher helps the students assess their current drug involvement and set goals to reduce levels of drug use incrementally toward no use.

The PGC approach assists youth to become and be drug-free. The teacher stops "war stories," so drug use is never positively reinforced. At the same time, the teacher supports a leadership role for those students who do not use drugs and enlists their help in sharing the reasons for not using and strategies for remaining drug-free. The leader provides praise and positive reinforcement for these behaviors and consistently counteracts any drug use "contagion effect" that occurs within the group. Not using drugs is rewarded as a healthy decision and a worthy model during check-in and during bring 'n' brag sessions.

The PGC component is only one of four important elements in the Reconnecting Youth indicated prevention program. PGC as a stand-alone program is unlikely to be sustained. The PGC teacher and youth need a supporting cast to help reconnect at-risk youth to school, home, and community.

TABLE 1. *Organization and examples of group skills training sessions*

Unit Features	PGC Social and Life Skills Training Units			
	1. Self-Esteem	2. Decisionmaking	3. Personal Control	4. Interpersonal Communication
1. Background: Key Concepts	Positive self-esteem means knowing and appreciating yourself.	DM is a process of selecting from two or more possible options to solve a problem or set a goal.	Personal control means coping successfully with stress and feelings of depression, anger, etc.	Verbal and nonverbal exchanges that define relationships (e.g., expressing care and concern, negotiating).
Objectives	Give accurate self-appraisal; practice positive self-talk, group praise.	Make group contracts; set rewards for effective decisionmaking.	Practice relaxation and exercise techniques.	Practice refusal skills to resist peer pressure.
Strategies	Problemsolving	Decisionmaking	Adaptive coping	Communicating support
2. Focus Sessions	*PGC's Best Self, Support with Hugs, not Slugs*	*Evaluating Decisions*	*Stress Awareness: Stress Triggers, Stressful Reactions*	*Communicating Acceptance of Self and Others*
3. Skill 1	*Positive Self-Talk: An Affirmation A Day*	*STEPS to Decisionmaking*	*Using STEPS To Control Stress*	*Sending and Receiving Clear Messages: A Model*
4. Skill 2	*Positive Self-Images: Visualizing Group Strengths*	*Mini-Decisions/ Goals*	*Getting Support To Control Stress*	*Helping Friends: Taking STEPS, Helping vs. Enabling*
5. Skill 3	*Interrupting Automatic Thoughts*	*Time Management*	*Working Out Stress Through Exercise and Fun Activities*	*The Give and Take of Conflict Negotiation*
6. Application: Achievement	*Removing Barriers to Success*	*STEPS to Improved School Achievement*	*Getting Support To Improve School Achievement*	*Negotiating With Teachers*
7. Application: Drug-Use Control	*Dependency and Stress*	*STEPS to Drug-Use Control*	*Controlling Addictive Behaviors*	*Saying "NO" With Style!*
8. Application: Mood Management	*Emotional Spirals*	*STEPS to Improved Mood*	*Controlling Anger: Triggers and Reactions*	*Strengthening Friendships and Improving Mood*
9. Boosters for Achievement: Drug-Use Control Mood Control	*Self-Esteem Enhancement Boosters*	*The Refrigerator Door Company, What Can I Say? Recognition of Improvement*	*Your Piece of the Pie, Risky People/ Risky Places, Anger Check-In*	*Rescue Triangle, Breaking the Ice, Role-plays*

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Implementation Issues

Anyone considering use of Reconnecting Youth will want to look at several essential issues and procedures before implementing the program.

Administrative Leadership and Planning

Launching Reconnecting Youth requires effective administrative leadership, community support, and talented group leaders/teachers. Program success requires the support of all partners. School personnel, parents, and community members all have important roles to perform, and all need to be involved from the start to coordinate the activities of Reconnecting Youth. Strong, committed administrative leadership is the "master key" for accomplishing the following tasks:

- *Develop a partnership model*—Initiate a series of meetings with important stakeholders. These individuals need to understand Reconnecting Youth—what it is, for whom it is designed, why it is needed, what evidence there is for its effectiveness, and how it might be paid for. Follow an agreement to proceed with planning meetings to establish in detail all aspects of an implementation plan.
- *Establish a community support team*—Create linkages with community groups to form and strengthen the overall community support for Reconnecting Youth and enhance the quality of program implementation. The key is to determine ways that willing community members can become constructively involved as partners in the school's efforts to implement each component of the program.
- *Set up a school-based crisis response plan*—Work out a crisis intervention plan to connect PGC youth with appropriate resources if needed.

Preparation for Implementing the Personal Growth Class

Having accomplished the "readiness tasks" listed above, the school administrator turns the focus to teaching PGC.

Scheduling the Class

PGC has to be part of the regular school curriculum, either as an elective or to meet certain required credits such as psychology or health.

Identifying and Selecting the Intended Participants

Use the identification and selection model (Herting 1990), working from the school or school district's computer database. Alternately, select 9th- to 12th-grade students at random from the identified pool. This ensures a heterogeneous group across age, gender, ethnicity, maturity level, and the three presenting problems of school failure, drug involvement, and depression. Avoid existing cliques of deviant youth, which offer powerful pressure for them to continue to act out, be resistant, and negatively influence the other youth in the group.

Inviting the Students To Join PGC

Students from the eligible pool should be individually invited by the PGC group leader/teacher. The invitation must be motivational and appealing while simultaneously communicating the purpose of PGC.

The PGC Group Leader/Teacher

The key to the success of the program is the leader/teacher. Leaders provide the most important human resource influencing the success of PGC. The group leaders observe firsthand the signs of underlying drug abuse or suicide risk in PGC youth. Without a competent, motivated group leader who has a history of being able to connect with these students, the program will not succeed.

Identifying an Appropriate PGC Group Leader/Teacher

Successful PGC leader candidates have experience working with high-risk youth. Motivated leaders also are enthusiastic about the program and its goals and want to make a difference in the lives of these youth. Regardless of the discipline of the candidates, the common

characteristic is the candidate's capacity for consistent and long-term caring for high-risk students.

Selection Criteria

Key criteria for selecting PGC leaders/teachers include the following:

- Skilled in establishing helpful relationships with high-risk youth
- Nominated by professional peers and by high-risk students as being effective
- Motivated to teach PGC and work with high-risk youth
- Stable with high self-esteem so they can put the needs of the youth first and consistently implement the key concepts of PGC as a healthy role model
- Willing to regularly participate in teacher training and ongoing peer consultation groups, having the attitude that there is always more to learn in being an effective group leader/teacher
- Highly regarded by their faculty colleagues and an "insider" in the high school, therefore having greater opportunities for promoting school bonding
- Committed to implementing the program (Eggert, Nicholas, and Owen 1995; Eggert, Thompson, et al. 1995; Eggert et al., *Preventing adolescent,* 1994).

PGC Group Leader Training and Support

PGC group leader training is essential to the success of the program. The program is unlikely to achieve the expected outcomes unless it is implemented as designed. Two of the primary reasons why programs fall short of expectations are (1) the program is changed without consideration of how these changes alter the basic philosophy and interventions known to contribute to its original success, and (2) the program is only partially or selectively implemented, which alters the "dose" of what is delivered.

Initial PGC Leader/Teacher Training

Initial training typically consists of a 5-day workshop covering the program philosophy, design, and rationale for the central goals of Reconnecting Youth. Also included is training in small-group discussion methods, skills-training strategies, and specific drug use and depression/suicide prevention strategies. Detailed plans for the PGC sessions and implementation guidelines are studied and practiced extensively by means of videotape analysis and feedback.

Ongoing Leader/Teacher Support and Consultation

During the implementation of PGC, leaders need an ongoing source of support, encouragement, and consultation. A program coordinator from within the district can create a peer consultation and support group for the PGC leaders within a school district. When this type of ongoing support and training was provided twice monthly in tests of PGC, all original teachers were sustained for the 5-year duration of the program evaluation research. In addition, prevention of PGC group leader burnout was successful, and only two PGC leaders required replacement on the basis of factors unrelated to performance or interest. The teachers benefited from viewing each others' videotapes, comparing notes and experiences, and providing each other with exceptional peer supervision and consultation.

Special Administrator and PGC Leader Working Relationship and Support

To enhance success, the group leader must have the support of school principals. They must support, in theory and practice, the need for the class and the unique nature of the curriculum. It is especially important to work out ahead of time issues related to (1) confidentiality, (2) discipline, (3) serious depression and suicidal behaviors, (4) support from the counselors and other teachers in the school, and (5) collaboration with community agencies and services. Policies related to all these issues must be consistent with the overall philosophy and prevention goals of PGC.

The teacher who conducts PGC as only one of his or her other regular daily classes cannot be expected to provide all the support needed for the high-risk youth involved. A coordinated team effort is essential to support these high-risk youth in schools. The school administrator should assume a key role in developing and maintaining

the necessary collaborative teamwork that is essential to the success of Reconnecting Youth.

PGC Group Leader/Teacher Preparation: Ready, Get Set, Go!

The successful PGC group leader is most often a school teacher who believes in the high-risk student for whom the program is intended and believes in the philosophy, integrity, and framework of Reconnecting Youth. This teacher is committed to these youth and to implementing the program as designed. Thus, in preparing to implement the program, the selected teacher needs to do the following:

- Get ready to conduct the class by thoroughly understanding the "big picture," the basic framework and psychoeducational approach, and the structure and design
- Understand the specific details and sequencing of the lessons
- Study and practice implementing the first 10 days, which are a microcosm of the whole curriculum
- Know how to assess his or her leadership effectiveness so that when in doubt about the teacher's responsibilities and appropriate actions, he or she can be guided by the underlying principles of the PGC model
- Know how to monitor the students' progress and use this feedback to help students, by using both the PGC process evaluation and outcome evaluation tools provided to measure progress toward program goal achievement.

This brief discussion of issues to consider before implementing Reconnecting Youth illustrates that there is more to "getting started" than assigning a teacher to be the group leader for a class called Personal Growth. Careful planning, preparation, and teacher training are essential. A coordinated effort among the students, parents, school personnel, and community members is critical.

Evidence Gained From Reconnecting Youth

Various aspects of the Reconnecting Youth prevention program were developed, implemented, and evaluated in stages in collaboration with Pacific Northwest high schools over the past 12 years. Since 1985 the primary purpose has been to experimentally test school-based prevention efforts. This involved not only experiments with Reconnecting Youth as an indicated prevention program but also measurement studies and descriptive studies of high-risk youth and typical high school students. Some of the more important findings that are listed below demonstrate that high-risk students benefited and that their PGC leaders/teachers made a difference.

- For students, not only has Reconnecting Youth had an effect on reducing drug involvement, it also has reduced other co-occurring problems, such as poor school performance, aggression, depression, and suicidal behaviors (Eggert et al. 1990; Eggert, Thompson, et al. 1995; Eggert et al., *Preventing adolescent*, 1994).
- Students who participated in the program showed sharp increases in personal control and school bonding; young women especially showed reductions in deviant peer bonding (Eggert, Thompson, et al. 1995; Eggert et al., *Preventing adolescent,* 1994).
- The PGC teacher's expressed support and caring for the high-risk youth seemed to have the greatest influence on the positive outcomes for the program participants. It influenced decreased drug involvement (Eggert and Herting 1991), greater school achievement (Eggert et al., *A prevention,* 1994), and decreased depression and suicidal behaviors (Thompson et al., n.d.).

During the course of these experiments, Reconnecting Youth was refined in response to what was being learned. Stronger effects for reducing hard drug use and emotional distress occurred in the later years of program implementation. The current refined program (Eggert, Nicholas, and Owen 1995), which includes more anger management (Eggert 1994*b*), depression management, and monitoring activities, works better than earlier versions (Thompson et al. 1997).

Findings suggest that the program provided the typical participant with a positive experience

in which the desired changes in school performance, drug use control, and emotional well-being occurred.

Much also was learned from experiences with high-risk youth, specifically from studies that sought to explain more about the underlying causes of their poor school experiences and drug involvement. Some important findings and their implications include the following:

- The effects on decreased drug involvement were primarily related to reductions in hard drug use (including use of crack, cocaine, amphetamines). These were associated with decreases in adverse drug use consequences and increased drug use control. Findings suggest that a second semester of Reconnecting Youth would be beneficial for obtaining stronger effects in reducing drug involvement and preventing relapse. This program refinement is currently being tested with support from NIDA (Eggert 1996*a*).
- A major factor that impeded progress for Reconnecting Youth participants in reducing their drug involvement was family strain (Randell et al., in press). These findings suggest that having a stronger parent involvement component might also result in greater decreases in drug involvement for the students. An initial demonstration project to test the feasibility of this approach is in progress and is supported by NIDA (Eggert 1996*a*).
- Youth who received an indepth assessment of their risk and protective factors related to suicidal behaviors benefitted from this assessment protocol. They demonstrated sharp decreases in depressed mood, suicidal behaviors, aggression, stress, and hopelessness. As a result, this protocol has been expanded into two brief interventions. How these work to help potential high school dropouts who are also at risk of suicide is currently being tested with support from the National Institute of Nursing Research and the National Institute of Mental Health (Eggert 1995).

Before the studies noted above were conducted, it was necessary to develop some measurement tools. Two instruments in particular have proven reliable for assessing change over time in adolescents' levels of drug involvement and emotional distress: (1) the DISA, Drug Involvement Scale for Adolescents (Eggert et al. 1996; Herting et al. 1996), and (2) the MAPS, a computer-assisted Measure of Adolescent Potential for Suicide (Eggert 1994*a*; Eggert et al., *A Measure*, 1994). These instruments are unique. The DISA not only measures the frequency of alcohol use and other drugs used but also taps the levels of access to drugs, drug-use control, and adverse drug use consequences. This is important because researchers can analyze the effects of the various program components in Reconnecting Youth on these separate dimensions of adolescent drug involvement. This ability will help in discovering more about how to best help high-risk youth achieve the goal of becoming drug-free.

Similarly, the MAPS is unique in that it provides a comprehensive assessment of the risk and protective factors associated with not only suicide potential but also adolescent drug involvement and potential for dropping out of school. Because it is a computer-assisted interview, it provides the interviewer with an instant profile of the student interviewed. When current refinements and tests are complete, this instrument should provide the kind of data required for implementing indicated prevention programs for high-risk youth.

In developing Reconnecting Youth, the researchers also developed a full set of tools useful for process evaluation. With these tools, provided in the leader's guide (Eggert, Nicholas, and Owen 1995), those implementing the program are able to assess whether the program is being implemented as designed and how the students respond to their program experience.

Conclusion

The Reconnecting Youth program is one model of how prevention science is advancing. The promised benefits of indicated prevention programs for stemming adolescent drug involvement and related problem behaviors far outweigh the emotional and economic costs of doing nothing. The costs of prevention are also far less than those

of treatment, once drug involvement and depression are diagnosed as disorders.

Adolescence may represent the last best chance for high-risk youth to change their life course. To do this, they need our best efforts in prevention programming. Schools are ideal for indicated prevention programs for high-risk youth. School is central to the way in which these youth are socialized, and school is a place where they use and share drugs. By addressing the challenges of these youth and providing a better school experience that fosters a sense of belonging and purpose, key risk and protective factors in their lives are altered. School performance improves, drug involvement decreases, and the emotional distress expressed in depression, aggression, and suicidal behaviors declines. This experience should stimulate others to join in supporting indicated prevention programs for potential high school dropouts, as well as for other high-risk individuals.

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Preventing Drug Abuse Through the Community: Multicomponent Programs Make the Difference

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Introduction

Since 1991, after a relative hiatus of several years, drug use, including tobacco and marijuana use, among U.S. adolescents has been on the increase, and more recently, illicit drug use as a whole (Johnston et al. 1995). The question is, why?

One major hypothesis is that after a decade of intense public attention to the youth drug use problem, the U.S. public may have experienced burnout (Johnston 1996, pp. 17-18; Bachman et al. 1990). The intense focus of attention has been indicated by national mass media coverage, special attention to drug abuse education in schools, and an influx of Federal dollars for prevention research and demonstration projects. The burnout manifests itself as the antithesis of indicators of public attention: low mass media coverage, poorer implementation of and lower budgets for drug education in schools, and loss of Federal dollars for prevention education research. These funds have been appropriated elsewhere to novel areas of public interest, such as violence, and underserved populations, and minority and rural populations of youth.

Decreased attention to universal drug abuse prevention, that is, *specific* drug abuse prevention and education for *all* youth, may increase drug use by sending an inadvertent message to youth that drugs are either more tolerated or less prevalent (perceived social norm) or not as harmful as previously thought (perceived personal risk, Bachman et al. 1990). Sustained reversal of the attentional problem and related drug use mediators may depend on a community-based approach to drug abuse prevention. This would necessitate a comprehensive programmatic and policy intervention strategy integrating multiple, varied community intervention channels that together and over time are most likely to reinforce youth prevention practices and promote non-use social norms in the community.

Several questions arise in consideration of a community approach to drug abuse prevention compared with single or smaller channel approaches such as school or parent programs. First, on a general level, should a community adapt or tailor a strategy based on previous research and theory or develop a new strategy? The former decision assumes a consistent set of behavior change principles and results that can generalize across communities; the latter assumes that each individual community is unique and that a community's leaders should fashion a prevention program based solely on their own perceived needs and preferences.

A second general question is whether community leaders should organize and develop a prevention program according to a formal, agreed-on process, meet briefly to catalyze others' efforts to promote drug prevention, or meet initially and let the chips fall where they may. The first decision would be based on research, the second on an assumption of community reactivity, and the third on no assumption.

Finally, in general, should a community develop a structure according to which certain identified parties are held responsible for program planning, training, implementation, and evaluation, or

should these activities be dependent on the availability and interest of volunteers? Again, the first decision is based on research, the second on existing resources.

In addition to general questions that will define a community's overall approach to drug abuse prevention, several specific questions arise. These questions are most likely to be raised by the parties in the community who perceive themselves as decisionmakers for a prevention program. First, what components or ingredients of a community program can produce a significant change in drug use behavior? Second, how large is a significant effect, and will this effect be interpreted as meaningful by the community? Third, is continuous programming across different ages and grade levels required to sustain a long-term program effect? The community can address all of these specific programmatic questions by referring to previous research. Where research is lacking, comprehensive theories of behavior change can guide a community's decision to adopt a particular prevention program or strategy.

Review of Theory

Person-level (P) theories of behavior change suggest that programs aimed at changing personal attitudes about, and the value and consequences of, drug use are more likely to change individual drug use behavior than are those aimed at changing knowledge or at providing information about drugs (Ajzen and Fishbein 1990). Added to this are theories of cognitive problemsolving and intentions, which suggest that skills training and public commitments against drug use can change an individual's decision and intentions to use drugs (Petraitis, Flay, and Miller 1995).

Situation-level (S) theories of behavior change are those that focus on changing interpersonal and group behavior. The most effective among these for changing drug use behavior by youth are the social influence theories, including social learning theory, self-efficacy theory, and social normative expectancy value theory (Bandura 1977; Rotter 1954). These theories suggest that drug use behavior can be prevented or changed by teaching youth how to avoid or counteract social pressures, such as group peer pressure, to use drugs and how to correct perceived social norms for drug use. These theories further suggest that interactive program implementation methods are more likely to change behavior than didactic methods.

Environment-level (E) theories suggest that changing the community norms for drug use, enabling diffusion of prevention programs and messages, and empowering community leaders to take responsibility for drug use prevention are the means by which prevention programs are likely to effect changes in drug use behavior, particularly over the long term. These theories include diffusion of innovation, organizational change, mass communication, and empowerment theories (Rogers and Storey 1987, pp. 817-846; Pentz 1986; Goodman et al. 1996).

All three levels of these theories should be integrated in the conceptualizing, design, implementation, and evaluation of community drug abuse prevention programs. P-level theories explain how the norms, attitudes, and behaviors of individuals can be changed. Programs based on these theories, if implemented with successively larger groups and populations, are likely to change perceived group norms and actual community norms as well, according to S- and E-level theories. Programs incorporating S-level theories build peer and family support for prevention practices. Incorporating E-level theories extends drug use prevention messages, norms, support, and resources to the community. E-level theories also improve the likelihood that programs will be maintained or institutionalized over the long term.

A community-based drug abuse prevention program based on an integrated P × S × E theoretical model would most likely include the use of multiple program channels that represent P, S, or E levels of influence on youth, including school, family or parents, community organization, mass media, and policy (Pentz 1986; Pentz 1994*a*). According to an integrated theoretical model, use of these program channels would be staged or sequenced into the community to maximize initial learning, boost learning effects, diffuse prevention support, and maintain public interest.

In addition to a theoretical model of behavior change, the complexity of mounting a communitywide drug abuse prevention effort requires attention to theories pertaining to organizational process (that is, the process by which a community can adopt, implement, and maintain a program) and structure (that is, the structure developed to promote and take responsibility for this process). Organizational theories relevant to community prevention programming suggest that a process with identifiable time-limited steps or objectives to be completed empowers community leaders to implement a program efficiently; such a process should include conjoint feedback and evaluation at each step before the next step is addressed (Goodman et al. 1996; Pentz 1986). Relevant structural theories suggest that community leaders form a council or coalition with several committees organized by responsibility for specific drug use risk factors such as drug accessibility, or by program channels such as mass media (Boruch and Shadish 1983; Pentz et al. 1989).

Review of Research

The development of a community drug abuse prevention program should be guided by previous research as well as by theory. Research incorporating one or more program channels relevant to community-based youth drug abuse prevention were reviewed. The review was restricted to published studies appearing in PsycINFO and MEDLINE searches, and in three cases, studies whose recent results are under review for publication. A total of 20 prevention studies and 4 reviews representing 96 community demonstrations resulted. Studies are summarized by type (tobacco, alcohol, other drug, heart disease or cancer with smoking component), evidence of use of theory (yes or no), research-based programs (yes or no), evaluation of process (yes or no), formal community structure organization (yes or no), and program components (mass media, school, family, community organization, policy change). Results are shown in table 1.

Of the 24 studies and reviews, 10 (42 percent) relied on a theoretical model of behavior change; 16 (67 percent) relied on previous research to guide program development. Five (21 percent) used a process model to guide development of a coalition or program planning, and 62 percent used a structure or structural model to develop planning responsibility. Overall, reliance on previous research was associated with more changes in drug use behavior than reliance on theory, process, or structure, although most research-based studies also included theory, process, and structure.

Based on youth-related experiences of the heart health trials, multicomponent community-based programs should include substantial school programming to initiate behavior change in conjunction with a community organization structure and process that promotes mass media programming and coverage, parent and adult education, and informal or formal policy change (Mittelmark et al. 1993). A standard for comparison might be the 2- to 15-percent short-term decreases found in school-based studies of smoking prevention (Pentz 1995).

Among studies with a community component alone, the two studies involving Boys and Girls Clubs educational programs and activities both showed significant short-term decreases in cigarette, alcohol, and marijuana use compared with short-term decreases reported for school-based programs (see Schinke et al. 1992; St. Pierre et al. 1992; Pentz 1994*b*). Three studies of coalitions showed that community or organization without education was ineffective overall in changing drug use behavior.

Overall, results of programs that included one or more community program components with a school educational program showed short-term effects on monthly smoking and drug use similar to those of comprehensive school programs that included a large number of sessions and boosters (see Botvin et al. 1995). However, the effects of school plus community programs appeared to have a greater range of effects and larger long-term effects on heavier use rates, averaging 8 percent net reductions (Pentz 1995). Community programs with a school component were the only programs to show any effects on parent behavior.

Thirteen (54 percent) of the studies and reviews included some type of community organization or education with a school program. For example,

TABLE 1. *Characteristics and effects of community-based drug prevention programs*

N/Type of Studies	Program Components: Base: Theory	Base: Research	Model: Process	Model: Structure	School	Parent	Media	Community Organization	Policy	Drug Use Outcome
2 drug prevention studies (Schinke et al. 1992; St. Pierre et al. 1992)	Y	Y	N	N				Community leader and peer training, education, complementary club activities		Decrease in cigarette, alcohol, marijuana use
1 smoking prevention review (50 coalitions) (Gottlieb et al. 1993)	N	Y	N	Y				Coalitions for training, distribution, release of materials, mass media coverage, lobbying		Not reported
2 smoking prevention studies (Kaufman et al. 1994; Flynn et al. 1992)	N	Y	N	N	Education vs*		Education coverage			Smoking decreased during intervention
1 smoking prevention study, 1 review (4 studies) (Flay et al. 1995, 1985)	Y	Y	N	N	Education vs	Homework, education vs	Education			Parent decreased smoking with school + parental intervention
1 smoking prevention study (Murray et al. 1994)	Y	Y	N	N	Education, vs	Homework, education vs	Campaign			No effects
4 drug prevention studies (Rosenbaum et al. 1994; Wiener et al. 1993; Carlson 1990, 1994)	N	N	N	Y	Education, SAPs			Police as trainers, task force		Delayed onset in 1 study; no overall effects
3 cardiovascular health studies with smoking prevention component (Perry et al. 1992; Barthold et al. 1993; Shea et al. 1992)	Y	Y	Y	Y	Education	Homework	Coverage, campaigns	Task force, distribution of materials, community education	Product availability	8% difference in weekly smoking at 5-year followup
1 smokeless tobacco prevention study (Stevens et al. 1993)	N	Y	N	Y	Education vs	Education vs		Task force		No effects

TABLE 1. *(continued)*

N/Type of Studies	Base		Model		Program Components					Drug Use Outcome
	Theory	Research	Process	Structure	School	Parent	Media	Community Organization	Policy	
1 drug prevention study (Kantor et al. 1992)	N	N	N	Y	SAPs, core team			Involvement in core team		Not reported
1 alcohol prevention study (Perry et al. 1996)	Y	Y	N	Y	Peer-led education	Homework, education		Task force, education	Policy change	6% difference in monthly alcohol use at 3-year followup
1 drug prevention study (Eggert et al. 1990)	N	Y	N	N	Education, counseling	Parent reinforcement education		Peer support		Decreased drug use reported in 1 study
1 smoking prevention study (Jason et al. 1991)	N	N	N	N	Policy education		Policy education		Possession	Smoking decreased during intervention
1 drug prevention study (Johnson et al. 1990; Pentz et al. 1989; Pentz 1993)	Y	Y	Y	Y	Education, lobbying	Education	Program, coverage		Task force, training	20% to 40% decrease in monthly and daily use through 5-year followup; effects on parent use at 3-year followup
1 alcohol prevention study (Hingson et al. 1996)	N	Y	N	Y	Peer-led education		Campaign	Task force	Restricted access	39% decrease in youth DUI fatalities
1 drug prevention study (12 demonstrations) (Sobol et al. 1989)	N	N	N	Y			Information campaign	Community coalition, service agency networking, law enforcement		No effects on drug use
1 drug prevention study (24 demonstrations) (Center for Substance Abuse Prevention 1996)	N	N	Y	Y			Information campaign	Community partnership coalition, law enforcement	Policy change	No effects on youth drug use

* Refers to a comparison between program components included in a study, e.g., a school educational program compared to media coverage of education.

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10 studies (42 percent) combined parent involvement through education or homework with a school program (Eggert et al. 1990; one review of four studies in Flay et al. 1985, 1995; Perry et al. 1992; Barthold et al. 1993; Shea et al. 1992; Stevens et al. 1993; Perry et al. 1993; Murray et al. 1994; Pentz 1993). Five of these suggested that parent involvement increased effects on youth health behavior; three studies suggested that parent involvement increased effects on parents.

Thirteen studies (54 percent) included a mass media component. Three of these suggested that media changed parent behavior (Flay et al. 1985; Flynn et al. 1992; Pentz 1993).

Several (29 percent) of the studies included some informal or formal policy change component (Perry et al. 1992; Barthold et al. 1993; Shea et al. 1992; Stevens et al. 1993; Perry et al. 1993; Hingson et al. 1996; Center for Substance Abuse Prevention 1996). Policy change mostly involved reducing youth access to substances and controlling product availability. Effects of policy independent of other components could not be determined.

Six studies (one a review) directly compared a school program component with parent and/or mass media components (Flay et al. 1995; Flynn et al. 1992; Kaufman et al. 1994; Murray et al. 1994; Stevens et al. 1993). Overall, these studies showed greater effects on youth drug use when community intervention included a school program and when school programs included parent and/or mass media programs.

In 1984 a comprehensive community-based drug abuse prevention trial, the Midwestern Prevention Project (MPP), was initiated in Kansas City; in 1987 a replication was initiated in Indianapolis. In both cities, by design, the native program implementation period extended through 1991. Since 1991 approximately 25 percent of Kansas City schools have retained the school program component; over 80 percent of Indianapolis schools and communities have retained the school, parent, and community program components. In both cities, retention of programming after 1991 represents institutionalization of a theory- and research-based program by the community with its own funds and resources.

Method

Subjects

Adolescents entering middle school (sixth grade) or junior high school (seventh grade) in fall 1984 in Kansas City and in fall 1987 in Indianapolis were the study population. From the transition cohort, approximately one-third of the population was randomly selected by classroom from each school and recruited for study participation with parental consent. More than 90 percent participated. The results summarized in this paper are based on two of multiple samples studied: a grade cohort sample that included a panel (N=5,400, N=50 schools, Kansas City), and a panel sample (N=3,192, N=57 schools, Indianapolis). The study population was approximately 70 percent white, 23 percent African American, and 7 percent other.

Research and Measurement Designs

Schools within each community (N=26) were assigned to an intervention or delayed intervention control condition, a two-group design. Because the MPP in Kansas City started after the school year began, assignment of all but 8 of the 50 schools was based on administrator ability to change schedules; the remaining 8 were randomly assigned. All 57 schools in Indianapolis were randomly assigned to the program or control condition. The measurement design was longitudinal, with students administered a survey and a comeasure at baseline and each year.

Intervention Models

Three models were used to develop the MPP: (1) the P (person) × S (situation) × E (environment) transactional theoretical model, on which hypotheses, measures, program content, and implementation were based; (2) the 10-step organizational process model, used to integrate research and local program planning, organize community leaders, and evaluate program planning and implementation; and (3) a structural model, used to organize, sequence, and assign responsibility for a community needs assessment, community organization training program implementation, and evaluation (Pentz, in press; Pentz 1986; Pentz et al. 1989; Pentz 1993). These are shown respectively as figures 1, 2, and 3.

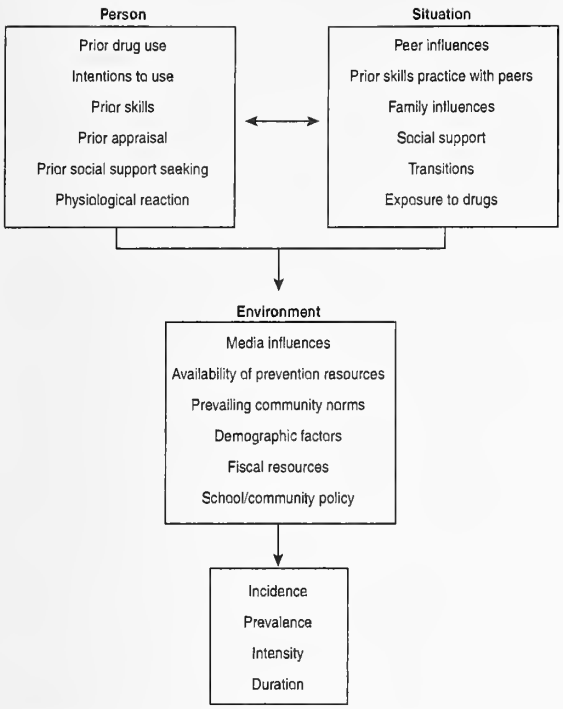

FIGURE 1. *The P × S × E transitional theoretical model*

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Intervention

The MPP community-based intervention, referred to locally as Project STAR or I-STAR, targeted avoidance and reduction of drug use, with special emphasis on prevention of cigarette, alcohol, and marijuana use in middle/junior high school. Five program components were implemented: (1) mass media coverage, promotional videotapes, and commercials about each program component; (2) an 11- to 13-session school program with 6 homework sessions with parents followed by a 5-session booster school program with 3 homework sessions; (3) a parent organization program involving parent-principal meetings and parent-child communications training; (4) a community organization program to organize and train community leaders to develop action groups; and (5) drug use policy change. Content and implementation methods for all program components were derived from several theories, including social learning theory (Bandura 1977), training resistance skills through the use of modeling, rehearsal, feedback with Socratic discussion, reinforcement, and extended practice; attribution and value expectancy theories (Azjen and Fishbein 1990), correcting perceptions of social consequences of drug use and social normative expectations about drug use; cognitive development theories, making public commitments to avoid drug use; preparing for school and developmental transitions (Pentz 1994*b*); communication theories (Rogers 1987) promoting positive parent-child and mass media communication; and social support. The order and phasing of program components, with one component introduced into communities at the rate of 6 months to 1 year apart, were based on diffusion of innovation and other mass communication theories (Rogers 1987).

The mass media program component focused on disseminating information about other program components to the public at large, presenting brief prevention skills, and presenting messages

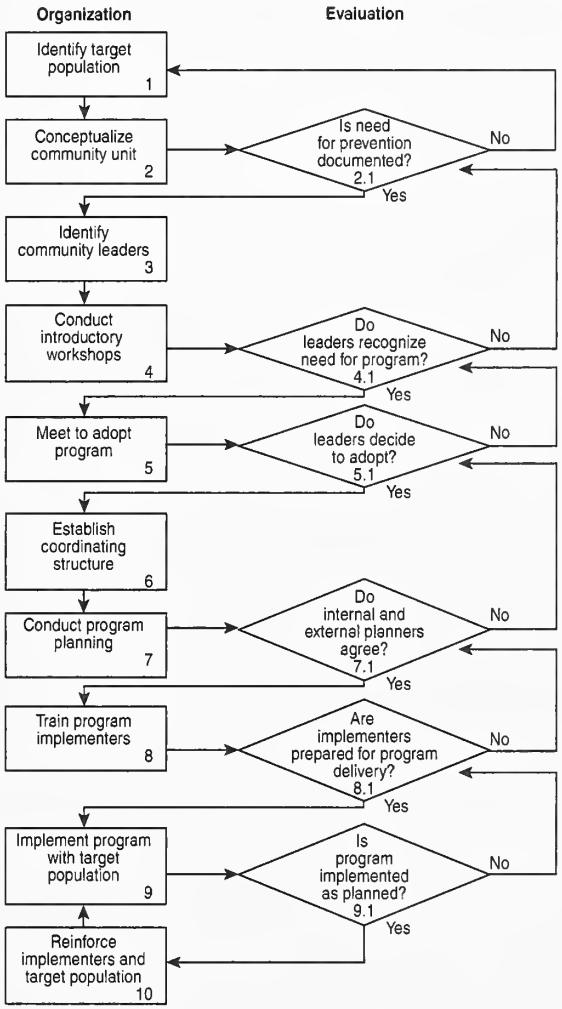

FIGURE 2. *The 10-step organizational process model*

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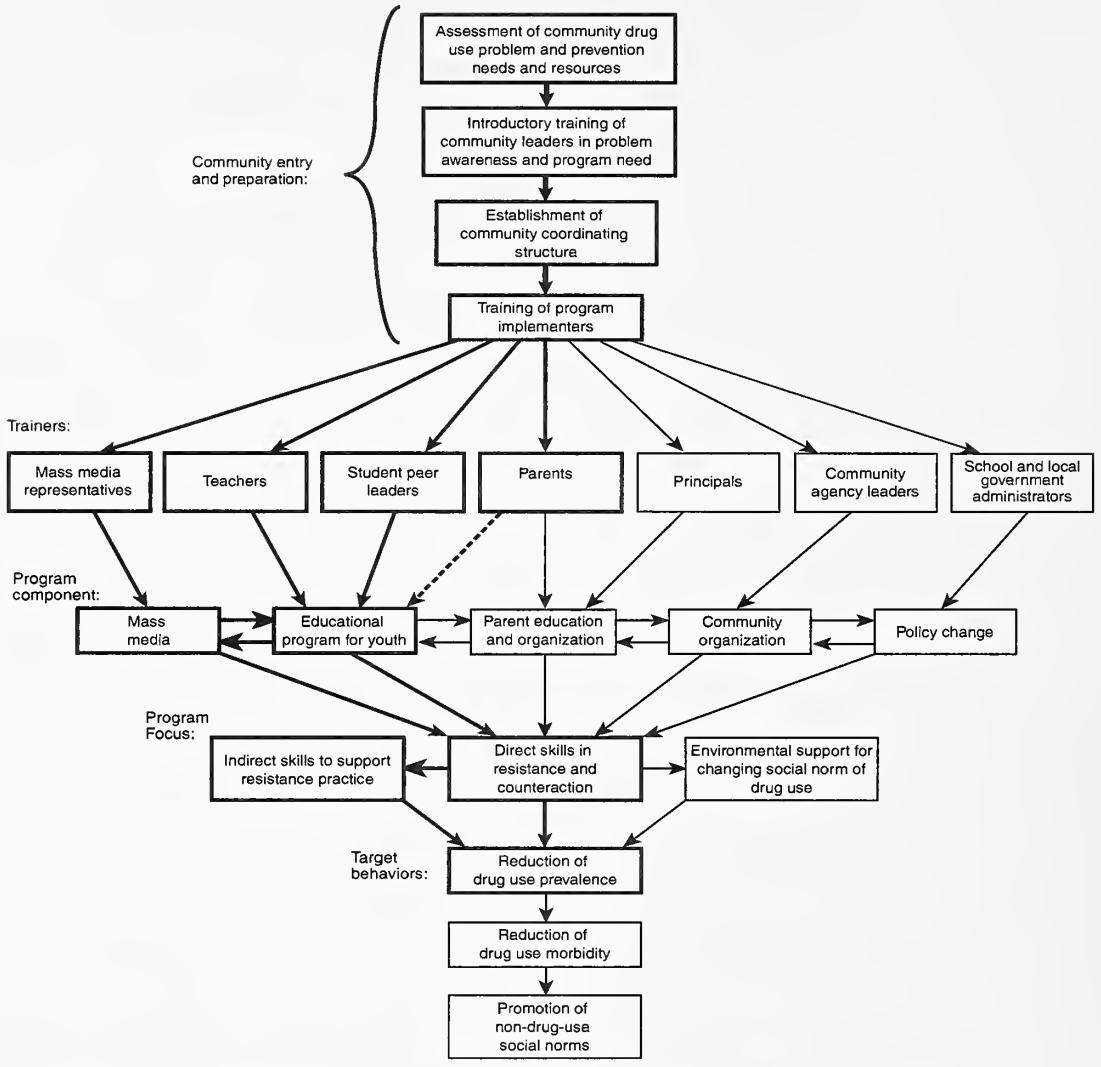

FIGURE 3. *A structural model used to organize, sequence, and assign responsibility for program development*

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targeted to youth and parents. The mass media component included an average of 31 television and print media segments each year beginning in the first year.

The school program component focused on training students how to recognize and counteract social influences to use drugs, including peer pressure, drug use modeling by parents and other adults, and glamorized portrayals of drug use in ads and mass media programs. The school program was implemented by trained teachers and student peer leaders in regular science or health education classes in 18 classroom sessions over the first 2 years.

The parent program component focused on developing a comprehensive school drug abuse prevention policy, deterring drug use on and near school grounds, and training parents in parent-child communication and prevention support skills through a series of organizational meetings and activities. The parent program was implemented by a core group of trained principals, two to four parents, and two student peer leaders in each school who met throughout each school year in the second and third years.

The community organization component focused on identifying and training community leaders in drug abuse epidemiology and prevention. The

organization developed citywide campaigns for drug abuse prevention to complement and reinforce prevention messages delivered in the other program components, facilitated referral and information networks among drug abuse prevention and treatment agencies, and supported and extended public education about the program to population groups not directly targeted by the other program components. Following the Minnesota Heart Health Project and other similar community organization models (Mittelmark et al. 1993), community leaders were organized as a council with eight action committees designed to develop and implement prevention initiatives according to youth-serving function (legislative, worksite, health/medical, educational, religious, youth social service/recreational, parental, and treatment [Mansergh et al. 1996]). The action committees met every 4 to 6 weeks, beginning in the third year.

Beginning in the fourth year, the policy component used the parent program committee from each school and the community organization to review and refine school drug-free zone policies, develop restricted use and access policies for youth at the community and city levels, develop mandates for funding youth prevention and treatment services, and lobby for a beer tax.

Measurements

A multiform questionnaire was administered in the classroom to all subjects by trained project data collectors who were independent of program implementation or training (average N of items = 116). Subjects were measured at baseline and at annual followups.

The questionnaire assessed frequency and amount of tobacco, alcohol, and marijuana use and other illicit drug use; psychosocial variables related to drug use, including use by peers and parents; and demographic characteristics. Immediately preceding questionnaire administration at baseline and each followup, carbon monoxide (CO), a byproduct of cigarette and marijuana smoking, was measured with a MiniCo Indicator (Catalyst Research Corp., Owings Mills, MD). The CO measure was used as a "pipeline" to increase the accuracy of self-reports of drug use.

Statistical Analysis

Several alternative statistical models were used to estimate program effects, including conditional (covariance) and unconditional (change score or repeated measures) models; linear regression with school as the unit of analysis and logistic regression with the individual as the unit of analysis; ordinary least squares estimation and weighted least squares estimation adjusting for differences in individual school sample sizes. Findings were similar across the alternative approaches. The results summarized here focus on ordinary least squares estimates, with school as the unit of analysis to match the unit of intervention.

Results

The general pattern of program effects through the end of high school is shown in figure 4, using unadjusted data on cigarette smoking in Kansas City as an example (Pentz 1993). Effects of the community-based program on cigarette, alcohol, and marijuana use have maintained beyond the end of high school and into early adulthood. Similar to comprehensive school programs involving many sessions and boosters, the MPP showed average decreases of 8 to 15 percent in cigarette and marijuana use, or a 20- to 40-percent net program effect, for the 3 years associated with program participation by students. Beyond the 3-year mark, the MPP showed greater and more sustained effects on heavier use rates than those reported by school or other single channel programs, including an average reduction of 4 percent in daily cigarette use, monthly drunkenness, and heavy marijuana use two or more times in the preceding week (Botvin et al. 1995).

Beyond the end of high school, effects have emerged on the use of some stimulant classes of drugs, including amphetamines and cocaine, but not on depressants.

Discussion

The following questions serve as directions for future research, answers to which could improve future community prevention practices.

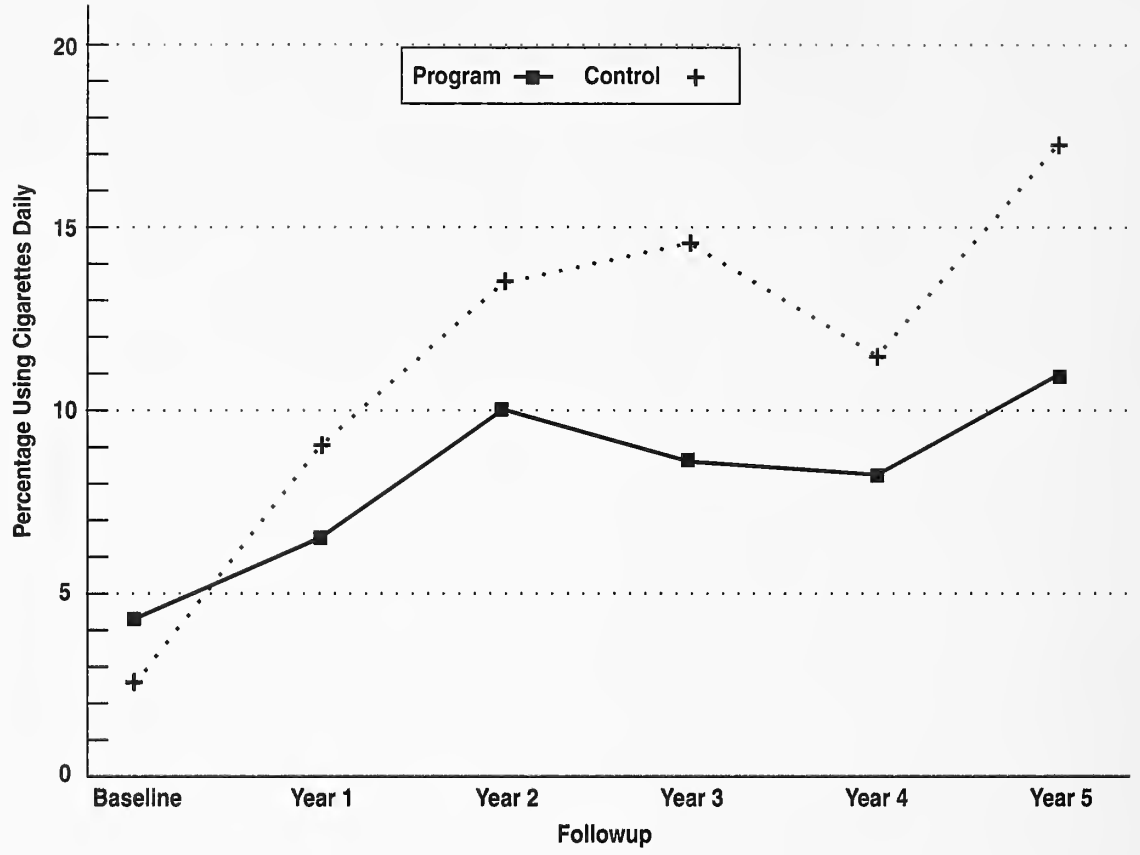

FIGURE 4. *Midwestern Prevention Program effects on unadjusted cross-sectional prevalence rates of daily cigarette use in Kansas City as an example*

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Is school plus community better than school or community alone? This paper suggests that, overall, yes, it is. However, a more definitive answer depends on studies using research designs that directly compare these components.

Are school-plus-community programs replicable? Given the consistency of positive findings of school-plus-community programs on youth and parent behavior, the general answer appears to be yes. However, communities show great variability in the structure and action plans of a coalition, council, core team, or task force component used to plan drug prevention. This type of component may not be replicable in a standardized fashion but could be evaluated as part of a qualitative or quantitative process and implementation analyses, as the Robert Wood Johnson and Center for Substance Abuse Prevention studies have attempted.

Is school-plus-community research feasible with multiple communities? Several methodological papers have indirectly addressed this question (e.g., Boruch and Shadich 1983, pp.73-98; Goodman et al. 1996; Manger et al. 1992; Pentz 1994*a*; Koepsell et al. 1992; Wiener et al. 1993). The demographics and past drug use behavior of communities are difficult to match, suggesting that a large number of communities would be necessary for randomizing to experimental conditions, with the community as unit. Such a study is expensive. Most of the studies reviewed here included multiple community components versus a control or delayed intervention control group. The ability to evaluate the effects of separate components in a community intervention would require the use of a factorial design, in which effect size associated with each component intervention or sets of components

compared with each single component intervention would be assumed to be significantly different. Only a few studies have had cell sizes large enough to detect differences between interventions or components of interventions (e.g., Flynn et al. 1992; Flay et al. 1995).

Are school-plus-community programs cost-effective? A recent analysis of the prototype-integrated school health education programs included projected costs and reported outcomes from seven comprehensive school-based programs and two school-plus-community programs (Rothman 1995). Results indicated that annual costs per student for program delivery ranged from $10 to $35. Effects, measured as percentage of net reduction between program and control groups, ranged from 6 to 9 percent. The benefit-to-cost ratio was 19 for smoking. A recent analysis of a school-plus-community program for drug abuse prevention supports these findings (Pentz 1996, pp.1-22).

Over the long term, who should coordinate school-plus-community programs, and who would fund these programs? The research studies reviewed here varied in terms of who was responsible for coordinating programming, including research staff members, health educators, school personnel, and paid and volunteer community leaders. None of the studies systematically compared the effectiveness of types of coordinators (see Goodman et al. 1996). A major question is whether coalitions that draw from community leaders but are organized by the school or school district generate more or less credibility and cooperation than coalitions that draw from community leaders and are organized by the community. The studies reviewed here showed the latter, but no comparisons with the former were made. If coalitions are used to coordinate school health education, then community agencies and Federal and State funds that are allocated to community agencies for health services might be used to augment existing school drug education budgets. However, if school-based health advisory councils are used, then accessing community health care funds may be difficult and resented. A long-term alternative would be qualifying school health clinics and health education as a managed health care service delivery organization, reimbursable by insurance and Federal funds (Pentz 1995). In this case, managed care funds could be combined with existing school health education funds to create a unified funding package for school health education. As long as health care reimbursements were forthcoming, this alternative should be more stable than relying on the graces of volunteered community agency funds.

Can integrated school-plus-community programs affect educational outcomes as well as health outcomes? Comprehensive school programs that included more than seven sessions, booster sessions, standardized training, and monitoring of implementation, had substantial effects on knowledge change, as did school-plus-community programs; no substantial differences were apparent. To the extent that knowledge is measured as an educational outcome in health education classes, comprehensive school programs and integrated school-plus-community programs could be considered effective in improving educational achievement. However, no studies reported a health program having significant effects on grade point average, absenteeism, or dropout rates, which are considered key indicators of educational achievement.

Summary

A review of multiple studies suggests that a community prevention program can vary in the use of mass media, parent programs, community education and organization, and local policy change. Results suggest that community-plus-school programs may yield greater effects on the more serious levels of drug use (e.g., on daily smoking compared with monthly smoking), effects on parents as well as youth, and perhaps more durable effects than are currently obtainable from most school programs alone. Overall, the magnitude of effects on smoking and substance use appears slightly greater for school-plus-community versus school programs alone (6- to 8-percent net reductions).

The review of studies points to several gaps in the literature, which should serve as directions for future research. These include the following:

- More systematic evaluation of the cost-benefit and cost-effectiveness of school and school-plus-community programs that rely on true costs

- Evaluation of the efficacy of extensive school programming alone (i.e., 30 sessions or more with boosters delivered over several years) versus the same school programming with additional community components, with school district/community as the unit of assignment and analysis if possible
- Comparison of school-plus-community programs that vary in intensity or type of community involvement.

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Advances in Family-Based Interventions To Prevent Adolescent Drug Abuse

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Introduction

There is reason for concern that the number of children enjoying success and good health may be decreasing in many communities. The overall rate of problem behavior in children (Achenbach and Howell 1993), rates of violence among children (Dishion et al. 1995, pp. 421-471), and the use of drugs in adolescence seem to be increasing, while the age of use is decreasing (Mathias 1996, pp. 8-9).

Targeting young adolescent drug use is a critical ingredient for the prevention of substance abuse, as onset by age 15 to 16 is among the best predictors of abuse in young adulthood (Robins and Przybeck 1985, pp. 178-193). To prevent early-onset drug use, it is necessary to organize interventions around the promotion of attentive and positive parenting with young adolescents. This statement is justified by findings from two areas of research. First, studies on the development of adolescent drug use show that such risk trajectories are directly or indirectly embedded within family disruption. Second, careful intervention research indicates that targeting families affects risk factors and adolescent problem behavior. The implementation of effective prevention practices depends on our collective understanding of the role of the family in the development of adolescent drug use and the effectiveness of family-based interventions. The following conclusions are based on extensive research conducted over the past 20 years:

- Parenting practices are central to children's development of risk for drug abuse.
- Family interventions are effective in reducing risk among children and adolescents.
- There are clear ingredients to those interventions that effectively target parenting practices.
- Family interventions can be integrated with other intervention strategies.
- Family interventions are economically feasible.

Central Role of Parenting

There is no single definition of success with children and adolescents. Similarly, positive parenting may take on a variety of forms depending on the culture, community context, and constellation of the family. Most parents are quite invested in their children's success and good health. As children mature, however, there is a natural tension that leads to increasing levels of independence and autonomy. Parenting in early and middle childhood sets the stage for the transition into adolescence. Continued parental support and positive family management can further reduce risk and promote success during this life juncture.

The scientific community has focused extensively on the role of parenting in establishing, maintaining, or exacerbating risk trajectories in children and adolescents. The goal of this research is to improve the understanding of developmental patterns leading to adolescent drug abuse as well as to identify which parenting practices to target in intervention and prevention trials. We now know a great deal about the risk and protective factors associated with adolescent problem behavior (Hawkins et al. 1992; Pandina, this volume). Early-onset drug use does not appear randomly, but is often a predictable

and identifiable outcome of a developmental progression that begins early in childhood (see figure 1).

Longitudinal studies that examine children before they begin using drugs are relatively rare. However, from the available evidence, it is clear that aggressive or antisocial behavior in childhood precedes substance use in adolescence (e.g., Block et al. 1988; Kellam et al. 1983, pp. 17-51; Smith and Fogg 1979). The sequence of events from childhood to middle adolescence (conceptualized as a progression) appears to be the best predictor of early-onset drug use (Patterson et al. 1992). This progression is probabilistic—not all children go through these stages in exactly the same way. For example, a child with marginal adjustment in the sixth grade can escalate through this sequence of events over the course of 2 years, given a family disruption or change in community risk factors.

Schools are the primary setting in which children's social and economic future is negotiated. Children who do not follow rules quickly fall behind in academic achievement (Patterson et al. 1989). Antisocial children are often disliked by other children (Coie and Kupersmidt 1983; Dodge 1983). The combination of underachievement in school and antisocial behavior, in fact, may seriously undermine the child's acceptance by the peer group (Dishion 1990, pp. 128-153).

Children experiencing academic difficulties and peer rejection tend to cluster into "deviant peer groups" (Dishion et al. 1991), and this process begins quite early (Cairns et al. 1988). However, in early adolescence, such peer clustering has serious implications for early-onset drug use (Dishion et al. 1995, pp. 421-471; Oetting and Beauvais 1987) and delinquent and violent behavior in adolescence (Dishion, Eddy, et al. 1997; Elliott et al. 1985). Exposure to drug use among peers is the strongest correlate of early substance use. It is often at this point that families with troubled adolescents seek treatment, unfortunately, after the investment in drug-using peers has been made. Although change is certainly possible, it is often difficult for parents to compete with the peer socialization process during adolescence.

The structure of the risk progression does not unfold in a vacuum. There is considerable evidence to indicate that it is not so much who the parents are but, rather, their parenting skills that are critical for understanding risk and protection. Researchers are beginning to converge on a definition of parenting practices that fall under the heading of family management: relationship building, limit setting, positive reinforcement, monitoring, and problemsolving/negotiation (Hawkins et al. 1992; Patterson et al. 1992). These parenting practices are not independent skills, but highly correlated and mutually synergistic (Dishion, Li, et al., in press). Regardless of ethnicity or family constitution, adults who have assumed the parental role and use these family management practices can protect children from some of the adverse conditions that lead to drug abuse.

To focus on the central role of parenting in the etiology of adolescent drug use does not justify blaming parents. A variety of stressful family, neighborhood, and community circumstances can disrupt positive parenting practices. Parental substance use is clearly a risk factor for early-onset drug use (Chassin et al. 1986) and may

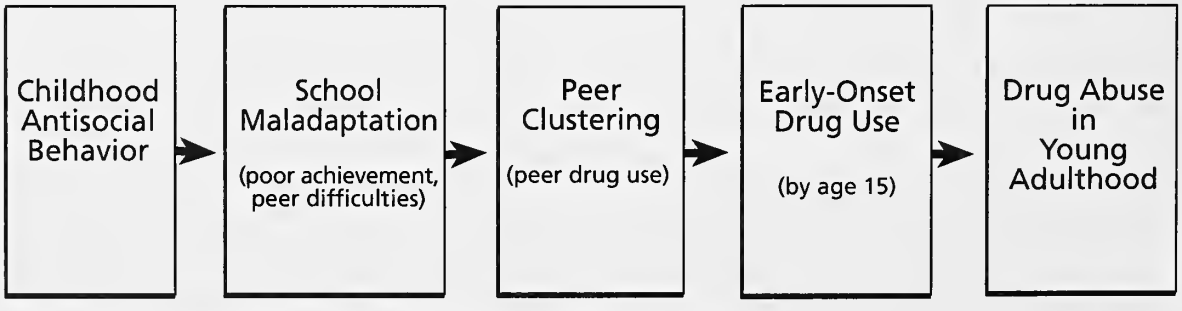

FIGURE 1. *A developmental model for adolescent drug abuse*

SOURCE: Adapted and reprinted with permission from Dishion, T.J., 1998.

undermine parents' ability to set abstinence as the norm for their adolescents.

Similarly, economic stress associated with historical events like the Great Depression (Elder et al. 1985), recessions (Conger et al. 1992), or longstanding patterns of disadvantage (McLoyd 1990) disrupts parenting, which in turn feeds into the risk structure. Parents can buffer the effects of such stress, although under some circumstances, the performance of positive parenting requires Herculean efforts.

Cultural stress occurs in a variety of forms and affects a growing number of our Nation's families and children. It is difficult for parents to bridge the gap between two cultural worlds as is often the challenge for Hispanic families (Szapocznik et al. 1980). Acculturation can have a disruptive impact on parenting. Interventions that provide support for parents under these stressful circumstances (bicultural training) are known to improve family functioning and relate to more positive outcomes in children (Szapocznik et al. 1984).

A growing number of families are experiencing the disruption of divorce and remarriage. These events are far from trivial to the lives of children. Family management is clearly a protective factor in the context of divorce (Forgatch et al. 1988, pp. 135-154). How parents handle conflict and their ability to prioritize their children's best interests by cooperation and negotiation is the key factor in explaining why some children remain healthy and successful in the face of serious stress (Buchanan et al. 1991; Maccoby et al. 1990). The number of remarriage transitions is linearly related to the level of maladjustment, including the use of drugs in childhood and early adolescence. However, the use of family management practices can dramatically reduce that risk (Capaldi and Patterson 1991).

In light of the rising levels of substance use and violence, the role of communities requires examination. Unfortunately, much of this research does not directly assess such influences in juxtaposition to what parents are doing to mitigate adverse conditions. Pioneering research by Wilson (1980) is a notable exception. This research indicated that in high crime areas in inner-city London, parental supervision was a key protective factor for preventing delinquency.

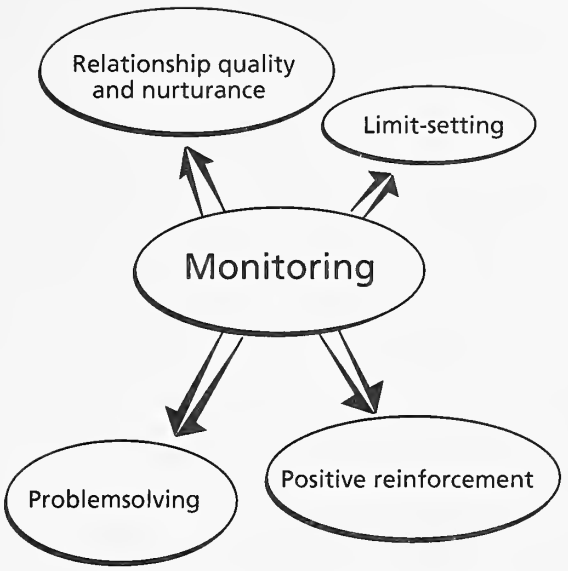

FIGURE 2. *The central role of monitoring in family management*

SOURCE: Adapted and reprinted with permission, Dishion, T.J., 1998.

It is becoming increasingly clear that parental monitoring is the foundation of positive family management, especially during adolescence when children become more independent and spend increasing amounts of time away from their parents (see figure 2; Dishion and McMahon 1998; Wilson 1980). To maintain a positive relationship, parents need to be aware of the positive efforts of their children.

In this sense, parental monitoring is both directly and indirectly related to early-onset drug use. The direct relationship is documented in various studies showing that poor parental monitoring predicts early substance use (Baumrind 1985, pp. 13-44; Dishion and Loeber 1985). Parental monitoring is also indirectly related to substance use via its impact on time spent with peers. Children who are not well monitored tend to wander about the community, freely selecting places to spend time that include drug use and other delinquent activities (Patterson and Dishion 1985; Stoolmiller 1994).

In summary, the evidence is clear that parenting practices can serve as a protective factor in the face of adverse, risky environments. Because of this protective role, parenting practices serve well as a target for the prevention of adolescent drug abuse.

Family Interventions Work

In general, a distinction should be made between interventions that support existing parenting competencies and those that target risk factors or family dysfunction. As discussed below, these two levels of intervention can be integrated. The bulk of the more rigorous research involving control groups and random assignment focuses on interventions that target risk and dysfunction.

Research has indicated that interventions aimed at improving parenting practices result in the reduction of risk factors as well as actual substance use in adolescence. Figure 3 summarizes the findings on the effectiveness of family-based interventions. These conclusions are based on the assiduous efforts of intervention scientists, most of whom are supported in their research by the National Institutes of Health.

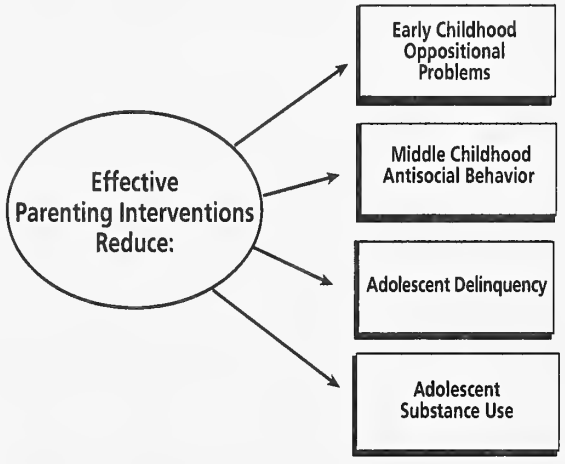

FIGURE 3. *The science of drug abuse prevention*

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Early Childhood

Oppositional problems in the preschool years are a precursor to antisocial behavior (Campbell 1994). Reduction of behavior problems at this age has the potential for long-term preventive effects. Webster-Stratton (1984, 1990) documented that parenting groups that focus on providing support for young families, in conjunction with skill development, produce marked improvements in observed parent-child interaction and teacher ratings of problems in preschool and that the positive effects persisted for at least 3 years after the intervention. Other researchers have found that parenting interventions are effective in reducing behavior problems in early childhood (Dadds et al. 1992). A critical piece of the Webster-Stratton program is the development of videotapes that provide examples of positive parenting practices. These videotapes are so useful to parents that change was observed in children's behavior as a function of the videotapes without the help of therapists (Webster-Stratton et al. 1988). However, in general mothers preferred to use the videotapes in leader-guided parent training groups.

Middle Childhood

Antisocial and aggressive behavior in childhood is a major predictor of adolescent drug use (Kellam et al. 1983, pp. 17-51). Interventions targeting parenting practices are the most promising in reducing antisocial behavior in middle childhood (Dumas 1989; Kazdin 1993; Patterson et al. 1993, pp. 43-88). The evidence is extensive, with several impressive studies of effectiveness. Patterson (1974) found that parent training interventions were effective in reducing antisocial behavior in the home and at school. Johnson and Christensen (1975) revealed that the impact of parent training was evidenced in parent perceptions, direct observations in the home, and brief telephone interviews. McMahon and colleagues (1993) found that parents were satisfied with parent training.

The advantage of family-based interventions is that the benefits accrue to all family members. For example, Arnold and colleagues (1975) documented that parent training produced statistically reliable changes in the behavior of the siblings of the referred child. This finding is particularly relevant when we consider that drug abuse and serious delinquency tend to run in families. West and Farrington (1973) found that 50 percent of the crimes in any given community are committed by no more than 10 percent of the families within them.

Research by Kumpfer and colleagues (1996, pp. 241-267) is supportive of the preventive potential of the Strengthening Families program. This program of research is exemplary with respect to its applicability and amenability to a wide range of families in diverse ecological settings.

Adolescence

It is often asserted that it is necessary to intervene early if one wants to have a preventive effect. Current knowledge suggests that this is simply not true and that intervention during adolescence is critical within an overall prevention strategy. If one takes a life-cycle perspective, interventions with high-risk adolescents can prevent difficulties in the next generation of young children, especially those of teenage parents.

Harm reduction is an explicit goal of intervention in the adolescent phase of development. If interventions reduce the escalating cycle of drug abuse, delinquency, sexual precocity, or extensive incarceration, it is possible that very real negative outcomes could be prevented. From this perspective, it is for each developmental phase that interventions are designed that reduce risk and promote current adaptation and success in the next developmental transition (Dishion and Kavanagh, in press).

Results of outcome studies indicate that family-based interventions during adolescence are effective in reducing current problem behavior and future risk (Alexander and Parsons 1973; Bank et al. 1991; Henggeler et al. 1986, 1992). The data suggest that interventions that promote family management reduce adolescent substance use (Bry et al. 1982; Bry and Canby 1986; Friedman 1989; Henggeler et al. 1997; Lewis et al. 1990; Schmidt et al. 1996; Szapocznik et al. 1997, pp. 166-190). Thus, contrary to popular misconception, behavior does not crystallize in adolescence and become intractable to family intervention.

To surmise the potential of family-based interventions for the prevention of drug abuse, it is necessary to consider studies that target not only adolescent substance use but also known precursors, such as behavior problems in early childhood and antisocial behavior in middle childhood. Taken together, the data are quite strong in favor of family-based approaches.

Ingredients of Effective Family Interventions

The studies cited previously share a common focus on the use of family management skills and promoting parents as the leaders of families. In addition, the science of family-based intervention is converging on the ingredients. In short, effective family-based prevention efforts should have the characteristics described below.

Collaborative and Respectful

Webster-Stratton and Herbert (1993) summarized collaborative models as including support, empowerment, and expertise and challenging parents to change and foresee problems and setbacks. In the author and colleagues' work in parent groups, the parents' rate of "advice-giving" was associated with positive change in parenting practices. On the other hand, the more the therapist taught social learning skills, the less parents changed. This finding is consistent with those of Patterson and Forgatch (1985), who found that when therapists increased their level of teaching, client resistance to change followed suit immediately. Patterson (1986) initially discussed this as a paradox for behavior-oriented therapies, where the presumption is that therapists exercise influence on change via their expertise in behavior change technology (e.g., point charts, timeouts, etc.). Behavior change is a delicate process that requires a period of contemplation regarding the need for change (Prochaska and Diclemente 1982).

Ecologically and Culturally Sensitive

A major barrier in working with parents is engagement and collaboration. Professionals in schools who try to meet with parent groups at night report that the parents simply do not attend. Parents often drop out of parent training programs prematurely, seemingly hopeless about their potential for having an impact (Dishion and Patterson 1992).

Parents are sensitive to the dynamics of the engagement and change process. Szapocznik and colleagues (1988) found that home visits prior to family therapy were critical to promote engagement and reduce early dropout. Patterson and Chamberlain (1994) reviewed findings on optimal strategies for minimizing parent resistance to change by using "soft clinical skills" such as support and empathy, and minimizing teaching, directives, or confrontations with the

family. Reframing verbal statements by family members regarding the "cause" of the problem is critical for change and the engagement of both the child and parents in the change process (Robins et al. 1996).

Finally, interventions with parents must be culturally sensitive (Kumpfer et al. 1996, pp. 241-267). For example, families experiencing the stress of acculturation need expertise and support in this area (Coatsworth et al. 1996, pp. 395-404), as well as therapists who are sensitive to cultural perspectives.

Flexible Delivery

As the previous points suggest, in interacting with parents in the change process, family intervention leaders need to be flexible at an interpersonal level. Behavioral family therapy focuses on supporting change in the family interaction contingencies. However, how that is accomplished varies, is highly flexible, and depends on the history and motivation of the parent. In many respects, the behavioral therapist is required to go "beyond technology" to be successful in working within a behavioral modality (Patterson 1985, pp. 1344-1379).

Family-based interventions also must be flexible with respect to scheduling and locus of the intervention activity. Spoth and Redmond (1996, pp. 299-328) have advanced the field by using marketing research strategies to better understand optimal ways of engaging and working with families. Families are not inclined to participate in family interventions that are led by professionals, have more than a 5-week time commitment, or involve the school or other parents. Despite these preferences, not all parents will seek the same intervention services, and therefore it is necessary to offer a wide range of intervention times and modalities in a variety of locations.

Finally, a rigid focus on parenting issues is not as effective as encompassing multiple levels of issues that confront and disrupt parenting (Henggeler et al. 1986; Prinz and Miller 1994). The flexibility of the intervention agenda is consistent with the principles of effective interventions for reducing alcohol problems (Miller and Rollnick 1991). In general, a menu of intervention options is more motivating.

Effective family-based intervention strategies interact with parents respectively, supportively, and collaboratively. They actively empower parents to take a leadership role in the family and to engage in effective, noncoercive family management practices. It is critical that family-based interventions be sensitive to the cultural and ecological context of the family.

Family Interventions Are Integrative

To understand the etiology of drug abuse, many preventionists are moving toward an "ecological model" design of prevention/intervention programs (Henggeler 1993; Szapocznik et al. 1997). An ecological model proposes that the problem of drug abuse does not lie exclusively with the individual but is a net outcome of contextual (settings and cultural issues) and individual factors. Research by Pentz and colleagues (1989) indicates that comprehensive strategies that integrate parenting practices have meaningful long-term effects.

Parent interventions should be compatible with other intervention strategies and capable of integration into more comprehensive community intervention programs. Figure 4 summarizes this

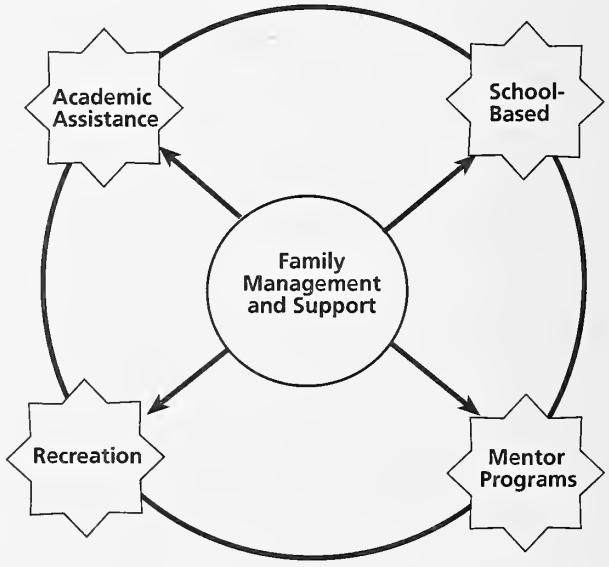

FIGURE 4. *Integrating families into a comprehensive prevention strategy*

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point, making the connections between school-based interventions, mentoring programs, recreation, and academic assistance.

The key point is that support for family management is at the center of the network. Communities need to consider the potential, unintended impact of an intervention program on family functioning. In general, interventions that inadvertently weaken the leadership role of parents or family management practices may have long-term negative effects. For example, Szapocznik and Kurtines (1989) found that a child-centered psychodynamic intervention may have caused family functioning to deteriorate. The assignment of a college student mentor can undermine a single parent who has little available time or resources. The mentor can take the child to recreational activities and always be upbeat, optimistic, and well rested; the child may make negative comparisons of the parent with the new mentor, or the parent's authority could be impaired by a mentor's scheduling events with the child without coordinating family management issues.

More optimistically, involving parents of high-risk youth in prevention activities such as recreation or clubs is likely to improve the preventive effect (St. Pierre et al. 1997). Certainly, integrating parents into prevention strategies shows promise (Telch et al. 1982).

If school-based programs ignore the role of parents in resisting drug use, over time this could have a negative impact on parents' collective sense of responsibility and empowerment in the effort to keep their children safe and healthy. Drug education and prevention would become the business of the school. It is in this sense that health promotion and the prevention of adolescent drug abuse would be better served by careful consideration of the critical role of caretaking adults in the long-term developmental trajectories of children.

Family Interventions Can Be Cost-Effective

One of the barriers to integrating family interventions into community prevention is the perceived cost. Yet, analyses of the benefits indicate that simple parent training is the most cost-effective strategy available for the prevention of crime (Greenwood et al. 1994). One can dramatically reduce such cost by matching the intervention with the levels of need and risk.

Several developments indicate that innovations in the cost-effectiveness of intervention models can be further improved by a focus on motivation to change. One development is a reformulation of the change process in the area of addictions. For example, it was found that most smokers who quit do so on their own. From this line of research, Prochaska and DiClemente (1986, pp. 3-27) developed a transtheoretical model of change that emphasizes the stages-of-change process. The major hurdle is reevaluating past behavior and making a decision to change and take action. Many individuals go through the contemplation-action cycle repeatedly until long-term change is maintained. This stages-of-change perspective has been empirically tested by Prochaska and colleagues (1991).

Currently the model serves as a guide to a brief, effective intervention with problem alcohol use, called motivational interviewing (Miller and Rollnick 1991). Motivational interviewing focuses on the stages of change by assisting individuals in the awareness of the discrepancy between their goals and their actual behavior. Motivation to change is induced through sharing of assessment approaches with clients and emphasis on support, empowerment, and responsibility for the behavior change process. The "Drinkers Check-Up" is an example of motivational interviewing that has been extensively tested (Brown and Miller 1993). The "Drinkers Check-Up" takes approximately two to three meetings with a client, but is superior to inpatient treatment (typically 28 days) in reducing alcohol problems.

This discussion is important to the design of family-based interventions in determining the viability of relatively brief interventions. In the next decade, a priority for many researchers will be to develop and evaluate a range of interventions, from brief motivational interventions to intensive family therapy.

The author is currently testing a family-based multiple gating model that integrates three levels of intervention: *universal*, which targets

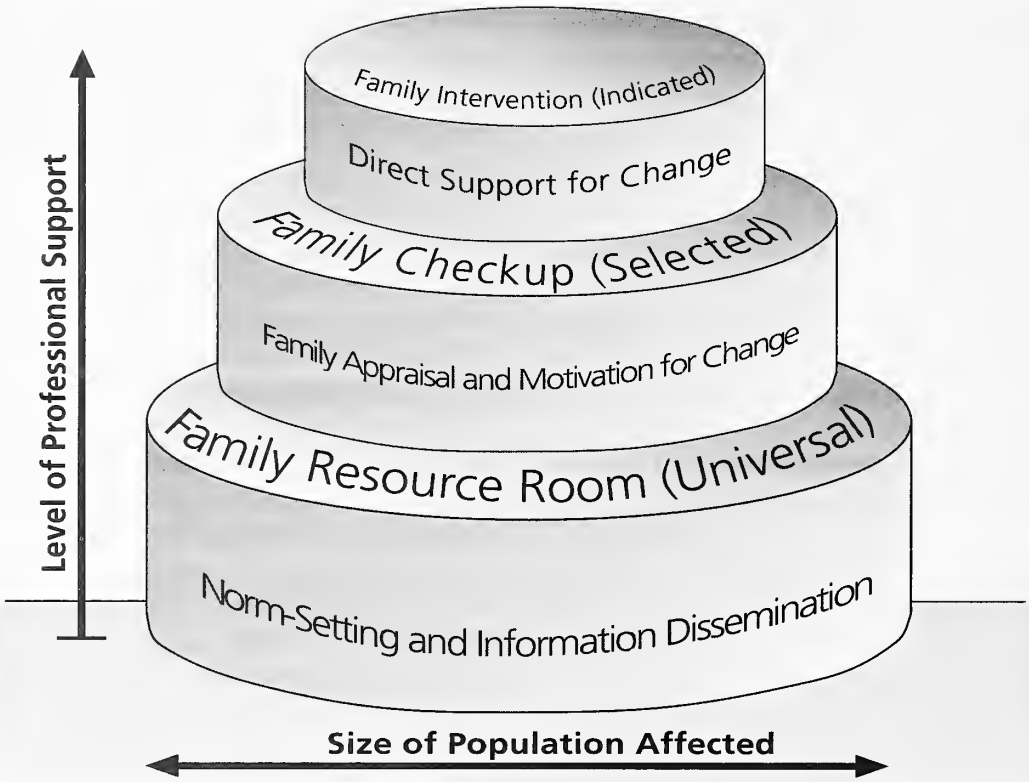

FIGURE 5. *A multiple gating model of parenting interventions within a school ecology*

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every person in the population; *selected*, which targets those families defined as at risk; and *indicated*, involving more intensive support for change for those who have been diagnosed with a given disorder. The multiple gating metaphor was derived from previous work in multistage assessments (Cronbach and Glesar 1965) and applied to screening and intervention with problem youth (Dishion and Patterson 1992; Dishion and Kavanagh, in press; Loeber et al. 1984). Figure 5 provides a brief overview of the multiple gating model of parent engagement and intervention.

The first task in engaging parents in the prevention of drug abuse is to make an effective link between the efforts of the school and the parents. A Family Resource Center is established for that purpose. In an average middle school, the prevention activities (available to the entire parent population) could be carried out by one full-time parent consultant. Research indicates that it is the ability to work collaboratively with parents, rather than the academic degree, that is crucial (Christensen and Jacobson 1994). Thus, nonprofessionals or paraprofessionals (with the proper training) could staff the Family Resource Center.

Several intervention activities are carried out through the Family Resource Center and are integrated with the prevention activities of the school. School-based curriculums (see Botvin, this volume) are often delivered in middle school health classes and have shown effects in delaying the onset of tobacco, marijuana, and alcohol use. The author has developed a similar school-based curriculum (Teen Focus) that integrates interventions for students with brief parent interventions. All parents of children in the health class receive information and engage in exercises in family management practices that promote positive child outcomes and reduction of the risk for early-onset drug use.

The second level of intervention is the Family Checkup. Teachers are highly effective at identifying which youths are at risk for future problem behavior (see Dishion and Patterson 1992; Loeber and Dishion 1983). To reach the second level, the Family Checkup service is offered to all families in the moderate risk range. For middle

school boys, this is determined primarily by their social behavior in the classroom and at school. For girls, academic failure is an additional indicator of risk.

The Family Checkup is a two- to three-session evaluation and feedback service that builds on the work of Miller and colleagues. Families are intensively assessed in their homes (90-minute sessions), and the youths are assessed at school. Parents are then provided with feedback to build motivation to continue those positive family management practices that are already in place and to improve on those parenting practices or circumstances that have been shown to elevate the risk of drug use in early adolescence. It is essential that the feedback sessions utilize the principles described previously for effectively working with parents.

Finally, on the basis of the Family Checkup, a small percentage of families (approximately 5 to 10 percent) will require more intensive support for change, along the lines described in the work of Bry, Hennegler, and Szapocznik. Support for change in family management includes daily information regarding the child's attendance, behavior, and homework completion; meetings with the parent consultant to support and solve parenting issues; and mobilization of community resources to reduce the family disruption that interferes with effective parenting.

This comprehensive model is currently being tested in a NIDA-funded prevention trial. Participants include 1,200 youth and their families from different racial and ethnic groups. Although each of the components described above has been shown to be effective, research will extend the findings to determine which level of intervention is indicated for families with varying levels of risk.

Summary

The etiology of drug abuse is not a mysterious accumulation of risk factors, but rather an outcome of disrupted parenting. There are widely various trends that are stressful for American families and that expose children to early-onset drug use and potential drug abuse. The use of effective family management practices is seen as a major protective factor. In this sense, prevention strategies that promote family management and adult involvement are critical for the long-term effectiveness of prevention. The evidence is clear that mobilization of parents at various developmental stages is likely to be effective in reducing risk or harm to children and adolescents. Developments within the behavioral change sciences in general, and within family-based interventions in particular, are promising with regard to the cost-effectiveness of reaching out to parents to collaboratively promote the health, success, and well-being of children.

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Invited Paper
Effectiveness of a Culturally Tailored, Family-Focused Substance Abuse Program: The Strengthening Families Program

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Introduction

Providing the support that families need in order to raise well-adjusted children is becoming increasingly important because of escalating rates of juvenile crime, child abuse, and drug use. The Monitoring the Future study (Johnston et al. 1996) shows steady increases since 1992 in tobacco use and since 1993 in illicit drug use. One-third (34 percent) of high school seniors now say they smoked in the past 30 days, and 22 percent report smoking daily. In the past year, 40.2 percent of seniors have used an illicit drug. Marijuana 30-day use rates for seniors have almost doubled since 1992, rising from 11.9 percent to 21.9 percent.

Although these increases are correlated with the immediate precursors of decreased individual and peer perceptions of the harmfulness and disapproval of drugs, social ecology model (SEM) data suggest that parents have an early influence on the developmental pathways toward drug use (Kumpfer and Turner 1990/1991). Whereas many empirically tested etiological models (Oetting 1992; Oetting and Beauvais 1987; Oetting et al. 1989; Newcomb 1992, pp. 255-297) find that peer-cluster influence is the major reason to initiate drug use, parental disapproval of drugs is a major reason not to use drugs (Coombs et al. 1991). Moreover, parental support has been found to be one of the most powerful predictors of reduced substance use in minority youth (King et al. 1992; Dishion et al. 1995, pp. 421-471). Hansen and associates (1987) have found that increased parental supervision is a major mediator of peer influence. Models that more finely test the aspects of family dynamics related to youth problem behaviors (e.g., antisocial behavior, substance abuse, high-risk sex, academic failure) find family conflict associated with reduced family involvement at Time 1 (T1) that significantly predicts inadequate parental supervision and peer deviance at T2. Ary and colleagues (1996) found direct paths from parental supervision and peer deviance to problem behaviors, suggesting that not all family risk processes are mediated by deviant peer involvement.

These etiological research studies suggest that parenting and family interventions that improve family conflict, family involvement, and parental monitoring also should reduce problem behaviors, including substance abuse (Bry 1983, pp. 154-171; Mayer 1995). Parenting skills training programs are effective in reducing coercive family dynamics (Webster-Stratton 1981, 1982; Webster-Stratton et al. 1988) and improving parental monitoring (Dishion and Andrews 1995). Like other researchers (Bry 1996; Dishion 1996; Szapocznik et al. 1988), this investigator believes improving parenting practices is the most effective strategy for reducing adolescent substance abuse and associated problem behaviors. Strengthening families could significantly reduce this increased trend in adolescent drug use and other problem behaviors (Achenbach and Howell 1993).

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One type of family support currently gaining in popularity is structured interventions for high-risk families, such as parent training and family skills training. According to the Institute of Medicine prevention classification scheme of "universal" (general population), "selective" (targeted), and "indicated" (subjects with identified risks) prevention interventions (Gordon 1987; Mrazek and Haggerty 1994), the family skills training intervention discussed in this paper is classified as a "selective" intervention targeting high-risk individuals or subgroups.

CSAP/PEPS Family Research Review

In a review of family intervention research for substance abuse prevention, only three family approaches appear to meet the National Institute of Medicine criteria for "strong level of evidence of effectiveness." According to the Center for Substance Abuse Prevention (CSAP) Family Prevention Enhancement Protocol System (PEPS) Expert Panel, this review of the research literature found that only behavioral parent training, family therapy, and family skills training approaches to prevention (Center for Substance Abuse Prevention 1998) show strong evidence of effectiveness in reducing risk factors for drug use, increasing protective factors, and decreasing drug use. Parent education, family support, and family education models did not have enough research studies with experimental or quasi-experimental designs with positive results to warrant qualifying as effective approaches at this time, although family support programs appear promising (Yoshikawa 1994).

The multicomponent family skills training approach appears to affect the largest number of measured family and youth risk and protective factors, according to a separate outcome analysis conducted for PEPS and presented at the NIDA family conference (Kumpfer, Wanberg, and Martinez 1996). Because multicomponent family skills training programs generally incorporate behavioral parent training, children's skills training, and behavioral family therapy, they address more risk and protective factors than other types of therapy.

Office of Juvenile Justice and Delinquency Prevention: Family Strengthening Research Interventions

In a 5-year evaluation of more than 500 family and parenting programs for the National Institute of Justice, Office of Juvenile Justice and Delinquency Prevention, the author articulated several principles for best practices in family programs (Kumpfer 1993; Kumpfer 1997). These included selecting programs that are comprehensive, family-focused, long-term, of sufficient dosage to affect risk or protective factors, developmentally appropriate, beginning as early in the family life cycle as possible, and delivered by well-trained, effective trainers.

The family programs were rated for their demonstrated impact in reducing risk factors and increasing protective factors. The top 25 promising programs were published in *Strengthening America's Families* (Kumpfer 1994*b*), which was rated as one of the top 25 family programs. The University of Utah staff won a rebid of this project, which included a new national search for model family programs, dissemination through two national conferences and training workshops in many exemplary and model family programs, and technical assistance in implementing these programs. These model programs and a literature review are available on the project Web site (http//www-medlib.med.utah.edu/healthed/ojjdp.htm).

Family-focused interventions appear to be more effective than either child-focused or parent-focused approaches. Child-only approaches, not combined with parenting or family approaches, can have a negative effect on family functioning (Szapocznik and Kurtines 1989; Szapocznik 1997). If high-risk youth are aggregated, deteriorated youth behaviors can occur (Dishion and Andrews 1995). Reviews of early childhood programs (Dadds et al. 1992; Mitchell et al. 1995; Yoshikawa 1994), elementary school-age children's programs (Kazdin 1993; Kumpfer and Alvarado 1995, pp. 253-292; Patterson et al. 1993, pp. 43-88), and adolescent programs (Center for Substance Abuse Prevention 1998;

Szapocznik 1997) support the effectiveness of family-based interventions. In fact, a number of adolescent family programs have found significant reductions in substance use (Henggeler et al. 1995; Lewis et al. 1990; Szapocznik 1997). In recent years there has been a shift from focusing therapeutic activities primarily on the child to improving parents' parenting skills and to recognizing the importance of changing the total family system (Szapocznik 1997; Parsons and Alexander 1997).

Newly developed family-focused skills training programs are more comprehensive and include structured parent skills training, children's social skills, and parent/child activities, sometimes called behavioral family therapy, behavioral parent training, or family skills training. The new family skills training approaches often offer additional family support services, such as food, transportation, child care during sessions, advocacy, and crisis support.

A few examples of these structured family-focused interventions include the Strengthening Families program (SFP) (Kumpfer et al. 1989), which is effective with substance-abusing parents and parents from racial and ethnic minority groups (Kumpfer, Molgaard, and Spoth 1996); Focus on Families (Haggerty et al. 1991) for parents on methadone maintenance therapy (Catalano et al. 1997; Gainey et al. 1997) the Nurturing Program (Bavolek et al. 1983) for physically and sexually abusive parents; Families and Schools Together (FAST) (McDonald et al. 1991) for high-risk students in schools; and Family Effectiveness Training (FET) (Szapocznik et al. 1985).

Other researchers are employing these broad-based family skills programs as part of even more comprehensive school-based intervention strategies. The Fast Track program (Bierman et al. 1996; McMahon et al. 1996), one of the largest prevention intervention research projects funded by the National Institute of Mental Health (NIMH), is one exemplary program. This selective prevention program, implemented with high-risk kindergarten students with risk factors such as conduct disorders, is being implemented in several different sites in the Nation with a large team of nationally recognized prevention specialists. Fast Track includes behavioral parent training. Parents were found to be satisfied with this type of parent training, which involves therapist coaching and interactive practice between the parent and the child (McMahon et al. 1993).

One distinguishing feature of these new parent and child skills training programs is that they provide structured activities in which the curriculum addresses improvements in parent-child bonding or attachment (Bowlby 1969/1982) by coaching the parent to improve play time with the child during a "Child's Game." This "special therapeutic play" has been found effective in improving parent-child attachment (Egeland and Erickson 1987, pp. 110-120; Egeland and Erickson 1990). Using intervention strategies developed by Kogan and Tyler (1978) and Forehand and McMahon (1981), parents learn through observation, direct practice with immediate feedback by the trainers and videotape, and trainer and child reinforcement on how to improve positive play (Barkeley 1986), by following the child's lead and not correcting, bossing, criticizing, or directing. Teaching parents therapeutic play has been found to improve parent-child attachment and child behaviors in psychiatrically disturbed and behaviorally disordered children (Egeland and Erickson 1990; Kumpfer, Molgaard, and Spoth 1996). These family programs encourage family members to increase family unity and communication and reduce family conflict as found in prior SFP studies.

Strengthening Families Program

Theoretical Model Underlying SFP

The importance of a family approach to substance abuse prevention is based on an empirically tested model called the social ecology model of adolescent substance abuse (Kumpfer and Turner 1990-1991). This structural equation model of the precursors of drug use, derived from comprehensive data on 1,800 high school students, suggests that family climate or environment (see figure 1) is a root cause of later precursors of substance abuse. The family influences the

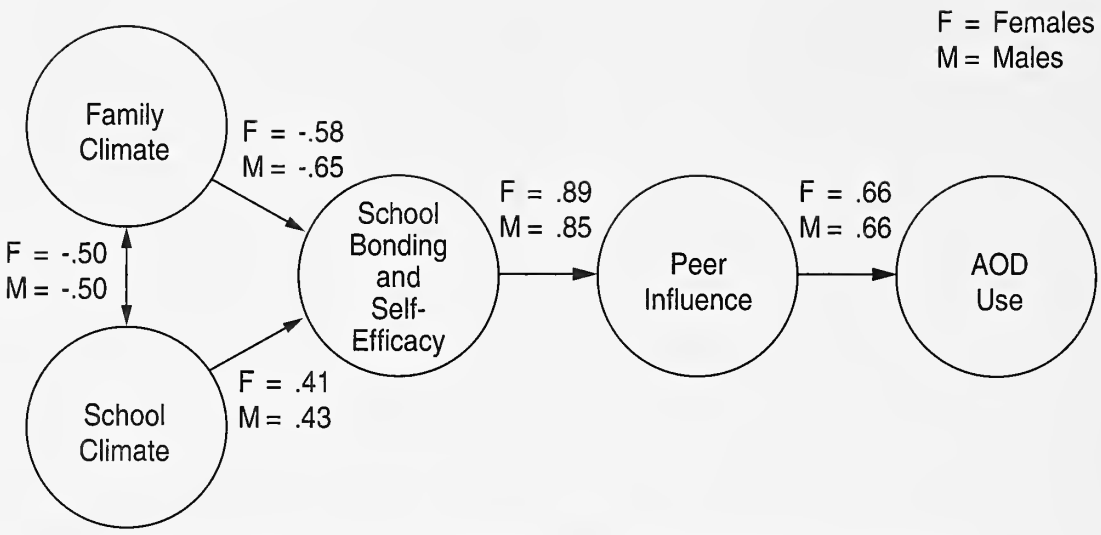

FIGURE 1. *Social ecology model of adolescent alcohol and other drug (AOD) use*

SOURCE: Adapted and reprinted with permission. Kumpfer, K.L., and Turner, C., *International Journal of the Addictions, 1991.*

youth's perceptions of the school climate, school bonding and self-esteem, choice of peers and deviant peer influence, and eventually substance use or abuse. Strong, positive relationships between child and parents create supportive, transactional processes between them that reduce the developmental vulnerability to drug use (Brook et al. 1990; Brook et al. 1992, pp. 359-388). Additional empirically derived models of the precursors of drug use also support the influence of the family (Newcomb et al. 1986; Newcomb 1992, 1995; Swaim et al. 1989).

The content of the SFP family intervention is based on empirical family research that elucidates a risk and protection or resilience framework presented by the author at the 1994 NIDA Resilience Conference (Kumpfer 1994*a*). The primary family *risk factors* include parent and sibling drug use, poor socialization, ineffective supervision and discipline, negative parent-child relationships, family conflict, family stress, poor parental mental health, differential family acculturation, and poverty (Kumpfer and Alvarado 1995).

Family *protective factors* (Kumpfer and Bluth, in press; Kumpfer, in press *a*) include one caring adult (Werner 1986; Werner and Smith 1992), emotional support, appropriate developmental expectations, opportunities for meaningful family involvement, supporting dreams and goals, setting rules and norms, maintaining strong extended family support networks, and other protective processes. The probability of a child's developing problems increases rapidly as the number of risk factors increases (Sameroff et al. 1987; Rutter 1987) relative to the number of protective factors (Dunst 1994, 1995; Dunst and Trivette 1994, pp. 277-313; Rutter 1993). Children and youth generally are able to withstand the stress of one or two family problems in their lives; however, when they are continually bombarded by family problems, their probability of becoming substance users increases (Bry et al. 1982; Newcomb et al. 1986; Newcomb and Bentler 1986). Future SFP content revisions will include more emphasis on resilience principles.

Overview of Prior SFP Research Studies

The Strengthening Families Program (Kumpfer et al. 1989) is a highly structured, 14-week, comprehensive family-focused curriculum. It includes three conjointly run components: parent training, children's skills training, and family skills training. Each 2.5- to 3-hour session is led by two cotrainers. The SFP for elementary school-age children of drug abusers was originally developed and evaluated between 1982 and 1985 (with 3 years of NIDA funding) employing a randomized phase III controlled intervention trial.

This paper discusses the original NIDA positive results and subsequent SFP replications with minor modifications for African-American families in Alabama and Detroit and multiethnic families in three counties in Utah. All of the replications to date have reported similar positive results on the parents' and children's behaviors and drug use (Aktan 1995; Aktan et al. 1996; Sherwood and Harrison 1996; Harrison, Proskauer, and Kumpfer 1995; Kameoka and Lecar 1996; for a review of all studies, see Kumpfer, Molgaard, and Spoth 1996 or Kumpfer, in press*b*). Positive results on intervention-targeted behaviors have been reported by Spoth and colleagues (in press) for a seven-session version of SFP (Molgaard et al. 1994). This SFP variant was based on resilience principles and developed for sixth-grade students in rural Iowa. It was tested in a 5-year, NIMH-funded randomized clinical trial in 20 counties in Iowa by Spoth at Iowa State University. The preliminary immediate session outcomes also look promising, with significant improvements in parenting attitudes and beliefs as well as significant increases in family meetings (Kumpfer, in press *b*). In addition, Spoth (1997) reported on positive outcome results for reductions in tobacco and alcohol use rates among youth participating in the program.

Original NIDA SFP Research Design and Subjects

The original NIDA-funded research was designed to reduce vulnerability to drug abuse in children of patients on methadone maintenance therapy and substance-abusing outpatients from community mental health centers. The experimental design tested the impact of a parent training program only, a children's training program added to the parent training program, and a family skills training and relationship enhancement program added to the other two components compared with no-treatment controls. In this experimental dismantling design, families were randomly assigned to either a 14-session SFP parent training program based on Patterson's (1975, 1976) parent training model; the combined SFP parent training program and SFP children's skills training program based primarily on Spivack and Shure's (1979) social skills training; or a three-part combination of the prior two programs plus the SFP family skills training program based on Forehand and McMahon's (1981) program described in their book, *Helping the Noncompliant Child,* and Bernard Guerney's Family Relationship Enhancement Program. The sample of 208 families consisted of 71 experimental intervention families, 47 no-treatment families matched on 8 demographic characteristics to the treatment families, and 90 general population comparison families.

Program Content

Both parents and children attend separate classes for the first hour and then work together in family sessions in the second hour. A third hour is spent in logistics, meals, and family fun activities. The underlying concept is to have the parents and children separately learn their skills or roles in a family activity and then come together to practice those family skills. To increase recruitment and retention, a number of incentives were developed by the various sites implementing the program, as recommended by Kumpfer (1991), including meals and snacks, transportation, rewards for attendance and participation (drawings, tickets, or vouchers for sporting, cultural, educational, and family social activities; movies, dinners, groceries, clothing, household items, and children's Christmas gifts), a nursery for child care of younger siblings, older adolescent recreation, and support/tutoring groups.

- The Parent Training Program sessions in the original SFP included group-building, teaching parents to increase wanted behaviors in children by increasing attention and reinforcements, behavioral goal statements, differential attention, chore charts and spinners (pie charts with sections representing rewards mutually decided on that children may get if they complete all chores), communication training, alcohol and other drug education, problemsolving, compliance requests, principles of limit-setting (timeouts, punishment, overcorrection), generalization and maintenance of limit-setting, and implementation of behavior programs for their children.
- The Children's Skills Training Program included a rationale for the program, communication of group rules; understanding feelings; social skills of attending, communicating, and ignoring; good behavior;

problemsolving; communication rules and practice; resisting peer pressure; questions and discussion about alcohol and other drugs; compliance with parental rules; understanding and handling emotions; sharing feelings and dealing with criticism; handling anger; and resources for help and review.

- The Family Skills Training Program sessions provided a time for the families to practice their skills (with trainer support and feedback) in the Child's Game (Forehand and McMahon 1981), a structured play therapy session with parents trained to interact with their children in a nonpunitive, noncontrolling, and positive way.

Research and observation have shown that dysfunctional, antisocial, and drug-abusing parents are limited in their ability to attend to their children's emotional and social cues and to respond appropriately (Hans 1995); hence, the four sessions of Child's Game focused on training parents in therapeutic parent-child play. The next three sessions of Family Game meetings trained parents and children to improve family communication. Four sessions of Parents' Game focused on role-plays during which the parents practiced different types of requests and commands with their children. The beginning session focused on group-building, introduction to content of program, contracting, and brainstorming possible solutions to barriers to attendance. The 13th session focused on generalization of gains and connecting to other support services; the 14th session was a graduation celebration. A testing session before and after the program meant the families actually attended for 16 weeks, although the training program was 14 weeks long.

NIDA SFP Outcome Results

An extensive multi-informant, multisource instrument battery of parental, child, and therapist report measures (including both parents or caretakers, therapists, and all target children) was employed to assess improvements of hypothesized risk and protective factor outcomes, including the Child Behavior Checklist (CBCL) (Achenbach and Edelbrock 1988), Cowen Parent Attitude Scale (Cowen 1968), and the Family Environment Scale (FES) (Moos 1974). Analysis of the baseline, pretest data indicated that children of substance abusers in treatment have significantly more behavioral, academic, social, and emotional problems than a matched comparison group of children of parents who are not substance abusers or children in the general population (Kumpfer and DeMarsh 1986, pp. 49-89).

Outcome results using analyses of variance (ANOVAs) to compare the four different treatment groups suggest that the combined intervention that included all three components was the most powerful in improving the child's risk status in three theoretically indicated and intervention-targeted areas:

- Children's problem behaviors, emotional status, and prosocial skills
- Parents' parenting skills
- Family environment and family functioning (improved family communication, clarity of family rules, nonconflictive sibling relationships, decreased family conflict, and less social isolation).

In general, the pattern of results suggests that each program component was effective in reducing risk factors that were the most directly targeted by that particular component. For example, the parent training curriculum significantly improved parenting skills and parenting self-efficacy, the children's skills program improved children's prosocial skills, and the family program improved family relationships and environment. Use of tobacco and alcohol by older children was reduced, as well as expectations of alcohol and tobacco use by those nonusing children. Parents also reduced their drug use and improved in parenting efficacy (DeMarsh and Kumpfer 1986, pp. 117-151). Although the children's social skills increased with exposure to the Children's Skills Training Program in the parent-training-plus-child-training condition, the improvements in negative acting-out behaviors were not as good as that found for the Parent Training Program only. This result, plus the recent similar results of Dishion and Andrews (1995), calls into question the potential value of high-risk child-only groups because of possible negative contagion effects and smaller effects on improving risky youth behaviors.

CSAP Replication Studies

Because of these positive NIDA SFP results, agencies in five States have been successful in attracting demonstration/evaluation research funding from CSAP. These five grants involved eight different community agencies with high-risk ethnic population families, including [two] studies with African-American families. Both of these studies—the Alabama State Department of Mental Health and Mental Rehabilitation study of low-income African-American drug-using mothers in rural Alabama and the Detroit City Health Department's study of inner-city African-American drug abusers—have published final positive results (Aktan 1995; Aktan et al. 1996; Kumpfer, Molgaard, and Spoth 1996; Kumpfer, in press *b*). Additional studies with low-income Hispanic families from housing complexes in Denver (Wanberg and Nyholm 1998), Asian/Pacific Islander and Latino families in three counties in Utah (Harrison and Proskauer 1995), and Asian and Pacific Islander families in Hawaii (Kameoka and Lecar 1996) demonstrate similar significant improvements in the children and families participating in SFP programs. A study of a language-modified and culturally modified SFP for high-risk French-Canadian families, which is funded by the Canadian government, is in its third year, and a new culturally modified SFP for Australian families was developed and implemented by the author.

These studies significantly demonstrate that SFP can be successfully implemented with ethnic families and that the dropout rates are low (15 percent) after the first few cohorts (Aktan 1995). The results for the African-American families only are summarized below. (See Kumpfer, Molgaard, and Spoth [1996] for a more detailed description of results.)

African-American SFP Results

Rural African-American SFP

The Alabama SFP program, implemented with 62 families in Selma, AL, by the Cahaba Mental Health Center, compared low-drug-using families (alcohol use only) to high-drug-using families (alcohol plus illicit drug use) in a quasi-experimental pretest, posttest, and 1-year followup design. Most (82 percent) of the families completed at least 12 of the 14 sessions.

Results showed that high-drug-using mothers not in drug treatment reduced their drug use (on a composite index of 30-day alcohol and other drug quantity and frequency of use), family conflict decreased, and family organization increased. Before the program began, the children of the high-drug-using mothers compared with children of low-drug-using mothers had significantly more (according to the CBCL) internalizing behavior problems (e.g., depression, obsessive-compulsive behavior, somatic complaints, social withdrawal, uncommunicative demeanor, and schizoid scales) and externalizing behavior problems (e.g., aggression, delinquency, and hyperactivity). By the end of the program, the children of high-drug-using mothers were rated as significantly improved on both the internalizing and externalizing scales and all subscales, except the "uncommunicative" subscale. Children of low-drug-using mothers improved only on the clinical scales for which they manifested relatively higher scores on the intake pretest, namely obsessive-compulsive behavior, aggression, and delinquency. SFP was equally effective for less educated and better educated mothers in improving the parenting style and behaviors of the children.

Urban African-American Families

The Safe Haven Program of the Harbor Light Salvation Army and the Detroit City Health Department is a 12-session SFP modified for inner-city African-American families. This program demonstrated similar positive results with 51 families by the end of the second year. Results showed significantly improved family relationships and family organization, reduced family conflict, and increased family cohesion. This increase in family cohesion, which was not found in Alabama, may have occurred because the Safe Haven program put more emphasis on reuniting the mothers and fathers as a total family. The families did report spending more time together. Also, the parents reported that parent-and-child activities increased as well as the amount of time that the parent and child spent together.

Parents reported a decrease in drug use, depression, and use of corporal punishment and an increase in their perceived efficacy as parents. According to parental reports, children's externalizing problem behaviors decreased

significantly in aggression and hyperactivity and approached a significant decrease in delinquent behaviors. Significant improvements from pretest to posttest were found only for the children of the high-drug-using parents in terms of reduced school problems and less general internalization of problems. There was also a reduction in more specific measures of depression and social withdrawal and in uncommunicative, obsessive-compulsive, and schizoid behaviors. Parents in both groups reported increased school bonding, more children's time spent on homework, and no significant unintended negative effects. These parent reports matched the therapists' reports on behavioral improvements in the participating families.

Utah Community Youth Activity Project (CYAP) SFP Research

The Utah State Division of Substance Abuse tested SFP in three counties and eight agencies that serve ethnic populations in a quasi-experimental pretest, posttest, and 3-month followup design comparing SFP to Communities Empowering Parents Program, a local program with no family skills training. A total of 421 parents and 703 high-risk youths (ages 6 to 13 years) were recruited to attend one of the two programs. On the pretest, 57 percent of the youth had behavioral and academic problems. The total sample included 33 percent fathers, 59 percent mothers, and 8 percent guardians or foster parents from 49 percent single-parent families, 66 percent low-income families, 69 percent families from ethnic populations (26 percent Asian, 20 percent Pacific Islander, 18 percent Latino, and 5 percent Native American youth), and 50 percent families with little or no religious involvement. The program materials for both programs and the instrument battery were translated into Spanish, Vietnamese, Tongan, Korean, and Chinese for this project. Attendance and completion rates for the program were high, averaging 85 percent across the three county sites.

Data Analysis

The analysis of the pretest and posttest change scores suggested improvements in family environment, parenting behaviors, and children's behaviors and emotional status. Significant pretest-to-posttest reductions in the youths' problems were reported by the SFP parents on all CBCL subscales and composite externalizing and internalizing scales, but on only two of the FES scales for family conflict and cohesion. SFP was significantly more effective than the comparison program.

Five-Year Followup Study

A 5-year followup study of the participants in this three-county Utah CYAP/SFP study (Harrison 1994) included 87 families confidentially interviewed by a research psychiatrist from Harvard University. The results (Kumpfer, Molgaard, and Spoth 1996) suggested that, even after 5 years, a substantial percentage of families were still using the family management skills that had been taught. Family meetings once per month were reported by 68 percent of the families, and 37 percent conducted them weekly. The adults reported lasting improvements in family problems (78 percent), stress/conflict levels (75 percent), amount of family fun (62 percent), family talking together more (67 percent), and showing positive feelings (65 percent). Analyses revealed a gradual decline in the frequency of use of family skills taught in the program; however, the researchers (Harrison 1994) concluded, "The change figures show that a majority of families maintain lasting improvements, even over a 5-year period."

Strengthening Hawaiian Families Program

In Hawaii, the Coalition for a Drug-Free Hawaii, headed by Lecar, has revised the SFP to be more culturally appropriate for Hawaiian-Asian and Pacific Islander cultures. The Strengthening Hawaiian Families (SHF) Program has a 20-session curriculum that emphasizes awareness of family values, family relationships, and communication skills. To increase parental readiness for change, a 10-session family and parenting values curriculum precedes the 10-session SFP family management curriculum. The revised curriculum covers topics such as connecting with one another, caring words, generational continuity, culture, communication, honesty, choice, trust, anger, problemsolving, decisionmaking, and stress management. An audiotape and videotape accompany the curriculum manuals.

An independent evaluation was conducted by the University of Hawaii (Kameoka and Lecar 1996) using a quasi-experimental, pretest-posttest, nonequivalent control group design to evaluate the effectiveness of hypothesized outcome variables to program objectives. The original 14-session SFP implemented in four sites in fall 1992 was compared with the 20-session, culturally revised SHF program implemented in nine sites between spring 1994 and winter 1995.

The measurement battery was culturally modified by alteration of words and expressions not common in Hawaii and comprised several different tests, including the 53-item Brief Symptom Inventory (BSI) (Derogatis and Lazarus 1994, pp. 217-248) and the Center for Epidemiological Studies-Depression Scale (CESD) (Radloff 1977) rather than the Beck Depression Inventory (BDI) (Beck et al. 1961). Only the 113-item Teacher's Report Form (TRF) (Achenbach 1991) was used rather than the parent CBCL version. Teachers were paid $5 to complete and return the form to the evaluator in a stamped envelope. The same 49-item substance use measure (Kumpfer 1987, pp. 1-88) was used as the original SFP testing battery as well as the four 10-item subscales of the FES (cohesion, expressiveness, conflict, and organization) and two subscales of the Adult-Adolescent Parenting Inventory (AAPI) (Bavolek 1985) on physical punishment and inappropriate expectations. A third subscale on parents' use of positive reinforcers was developed by the evaluator (Kameoka and Lecar 1996).

Because of high attrition (48 percent), low attendance rates, and lack of risk-level equivalence of the experimental and comparison groups, the results of the outcome evaluation must be interpreted with caution. Small sample sizes (19 SFP subjects, 52 SHF subjects), reduced risk at pretest compared with drug treatment samples in other studies, and switching to a values-based curriculum versus a social learning theory-based family and social skills training curriculum all contributed to lower power and effectiveness. This program was interpreted by the evaluator as an "educational program designed for nonclinical populations"; hence, participants receiving professional services were eliminated from the data analysis, yet they may have benefited the most.

Because of the nonequivalence of the comparison and experimental groups, only the significant pretest and posttest changes are reported here. Both the SFP and SHF programs attained their goal of strengthening family relationships and resulted in significant improvements in family cohesion and family organization, and in reducing family conflict. However, significant improvement was reported for expressiveness or communication. Only the original SFP resulted in statistically significant improvements in attitudes and skills in rewarding positive behaviors. The largest mean improvement for physical punishment was for the original SFP, but because of low numbers and high variance, this positive result can be reported only as a nonsignificant trend.

Similarly, the original SFP appeared to be more effective in reducing parental depression than was the culturally modified SHF; SFP resulted in positive changes in somatization, interpersonal problems, anxiety, hostility, phobias, and paranoia, whereas the SHF program affected only hostility and paranoia in addition to depression.

Substance use decreased in SFP participants for parents, siblings, and children but use increased significantly for SHF among children and nonsignificantly for parents. No significant improvements were found in children's behaviors as rated by their teachers from pretest to posttest.

Strengthening Hispanic Families Program

The Denver Area Youth Services (DAYS) has been involved in modifying the SFP for increased local effectiveness primarily with Hispanic children and families in several inner-city housing projects. These are the families shown in the NIDA videotape "Coming Together on Prevention" (National Institute on Drug Abuse 1994). Preliminary results suggest that the DAYS staff has been successful in attracting and maintaining these high-risk families in SFP. Between September 1992 and January 31, 1996, SFP and a child-only Basic Prevention Program (BPP) comparison intervention had been implemented with 311 clients. Twenty-five percent of referrals came from schools and other community agencies, but the balance of 75 percent came from

DAYS aggressive outreach efforts in housing complexes.

One of the major successes of this program was the high program completion rate of 92 percent, based on the criteria of a participant's attending at least 70 percent of all sessions and participating in the graduation ceremony to receive a certificate of completion (Kumpfer, Wanberg, and Martinez 1996). The mean age of the children was 8.4 years (range 5 to 12 years) with 53 percent boys and 47 percent girls. Single-parent homes accounted for 75 percent of the children, with 30 percent of the mothers reporting that they were never married to the biological father. Most participants were from low-income families, with a mean family income of $6,700. The manuals were substantially modified, and Spanish translation versions provided for Spanish-language families.

The Strengthening Hispanic Families Program is being evaluated by Wanberg and Nyholm (1998). Careful attention to retention in the followup design has resulted in 87 percent of the families completing the 6-month followup and 75 percent completing the 1-year followup. A relatively low level of risk factors is being reported for these children, possibly because this program is not selecting for children of substance abusers like the original NIDA research or the other Utah, Alabama, and Detroit studies.

Baseline data suggest that the major increase in exposure to tobacco, alcohol, and other drugs occurs in the lives of these Hispanic children between age 8 and 9 years. As in the Utah studies, many of the children (33 percent) report being sad or depressed, with 28 percent saying they have thoughts of hurting themselves or committing suicide. As many as 20 percent of these elementary school children are having difficulties with school adjustment, and 44 percent have been involved in fistfights.

The child and parent satisfaction and perceptions of usefulness of the two comparison programs were almost identical, although parents rated SFP slightly higher except in the areas of the child's "doing better at school" and "making friends," for which parents rated SFP about 20 percent higher (65 percent vs. 46 percent). The children participating in each program rated both programs about the same in usefulness.

Rural Families of Junior High School Students

Researchers at Iowa State University have developed a seven-session modification of SFP for junior high school students that is based on resiliency principles (Kumpfer, in press *a*), called the Iowa Strengthening Families Program (ISFP) (Molgaard, Kumpfer, and Spoth 1994). Research on this program was conducted with NIDA and NIMH funding for a phase III experimental intervention trial (Greenwald and Cullen 1985; Jansen et al. 1996) that compared 33 randomly assigned schools from 19 contiguous rural counties with either the ISFP and Preparing for the Drug-Free Years program (PDFY) (Hawkins et al. 1994) or no-treatment control schools.

Program Design

Like the original SFP, ISFP includes parenting and youth sessions in the first hour and a family session in the second hour. Parents are taught the importance of encouraging and supporting dreams, goals, and resilience in youth; providing appropriate expectations and discipline; engaging in effective communication with preteens; handling strong teen emotions; implementing family meetings to improve family togetherness, family organization, and planning; and determining family rules and consequences for breaking family rules. The children's sessions generally parallel the parent sessions and cover resilience with dreams and goals, stress and anger management, and social skills (such as communication, problemsolving, decisionmaking, and peer-refusal skills). The family sessions engage the participants in activities to increase the awareness of youth and family goals, increase family cohesion and communication, and reduce family conflict.

ISFP was implemented in winter 1994 with 161 families from 21 ISFP groups from 11 schools, but only 114 families completed the pretest and were included in the data analysis. The average group size was 8 families and ranged from 3 to 15 families, with about 20 parents and children attending each session. Approximately

94 percent of pretested participants completed at least five or more sessions, 88 percent attended at least six sessions, and 62 percent attended all seven sessions. Despite the use of the total parenting program videotape to help standardize the implementation as well as reduce the cost of the second trainer, fidelity observations of at least two sessions showed that 83 percent of the content of the parent training session was covered, 87 percent of the family session, and 89 percent of the youth skills training session. Spoth (in press) reports in more detail on the recruitment and retention rates for Project Family containing ISFP and PDFY.

Data were collected during a 2- to 2.5-hour in-home session using both questionnaires and including a number of standardized measures and three videotaped tasks, each lasting 15 minutes. The topics for the tasks included general questions about family life (such as approaches to parenting and household chores) that were discussed independently with either the mother and the child or the father and the child, selected randomly and then switched. In a second task, the family members discussed sources of disagreement determined previously by a checklist. The families were paid $10 per hour for the testing time.

ISFP Results

The preliminary session-by-session results were analyzed for comparison of the immediate behavioral intentions to change with actual changes (see Bry et al., in press, for additional discussion on these data). Overall, the data suggest a number of significant behavioral changes by the mothers and fathers from session to session that matched the actual objectives of the sessions. There are differential effects on mothers and fathers, related primarily to differences in baseline behaviors. Hence, fathers and mothers appear to change in those behaviors where they have more room for improvement.

The preliminary outcome data from the in-home video coding of family interaction patterns and the self-reported changes on the annual family assessments show significant improvements. Although the comparisons of each of the measurement scales have not yet been reported, Spoth and associates (in press) report significant pretest and posttest improvements in all hypothesized effects for both ISFP and PDFY, employing a "group code approach" for small sample structural equation models discussed by Aiken and colleagues (1994). This approach uses a common measurement model for both the experimental and control groups and includes a group code variable.

The major advantage of this type of SEM is that half as many parameters are required as for the multigroup approach, making this analysis attractive for smaller sample sizes relative to the number of parameters estimated. A finding of no statistically significant intraclass correlations associated with outcome measures indicated that family-level rather than school-level analyses would be appropriate despite the nested research design of families within randomly assigned schools. Spoth (in press) reports more on the preliminary results; however, at this point, the three hypothesized structural effects (parent-child affective quality, intervention-targeted behaviors, and general child management) appear to be statistically significant at both pretest and posttest at the .01 level when conducting an SEM analysis on data from 178 ISFP and 179 control group families (N=357).

Summary of SFP Outcome Results Across Diverse Ethnic Populations

The original NIDA SFP and the later Iowa SFP randomized control research provides strong evidence of the effectiveness of SFP with white families. Because of employing only quasi-experimental designs, the replication studies provide only weak, but consistently positive, support for SFP effectiveness for other ethnic groups. The effect sizes were quite large, as determined in a power analysis, in fact statistically significantly larger, for the higher risk families than for the lower risk families. However, the repeated replications with external evaluators suggest that SFP can be implemented by others with integrity and fidelity.

This is partially because the SFP manuals and training of trainers are very specific and detailed.

The SFP trainings require the staff members who will be doing the training to prepare several sessions from the manuals and deliver them to the group whose members role-play typical parents or children. Time is spent in processing group dynamics and discussing how to most effectively deal with participant issues that could arise from the program session content. Therefore, the trainers learn the total content of the program, see many different delivery styles, and learn how to deal with group dynamics.

The positive program results are consistent across the sites implementing the program even when different evaluators have evaluated the program. Six different independent research evaluations have been conducted by university-based researchers in three departments at the University of Utah. In addition, researchers at the University of Hawaii, Case Western University, Harvard University, and the University of Colorado have evaluated the program on cultural modifications. One doctoral dissertation (Millard 1993) that addressed high-risk, general population families recruited through schools also supported the positive results. Because SFP appears to be rather robust in terms of consistently favorable results across multiple replications with culturally diverse populations, NIDA selected SFP as an example of a selective prevention program for its Drug Abuse Prevention Package (NIDA 1997). An implementation manual and videotape, "Coming Together on Prevention," are available from the National Clearinghouse for Alcohol and Drug Information (Kumpfer, Williams, and Baxley 1997).

Research Issues and Recommended Future Family Intervention Research

Because of the small amount of past funding, many family research projects conducted only "black box" research designs to determine overall effectiveness in comparison with control groups. In addition to an emphasis on examination of program effectiveness for different cultural and ethnic groups, more refined research questions should determine:

- The most effective program components
- Effectiveness of family programs compared with child-only programs
- Duration of effectiveness using longitudinal designs and booster sessions
- Best recruitment and retention methods
- Who benefits most by conducting analyses by client demographic or risk factor covariates
- Implementation variables in health services research
- Cost-benefit of programs
- Why some communities and agencies are more ready than others to implement family programs or can do so with fidelity and increased effectiveness.

Research on Relative Effect Sizes of Components of Family-Focused Interventions

Few family-focused prevention programs have examined the different components of their programs to determine the differential effectiveness of components on different risk and protective factors. The Strengthening Families Program in the original NIDA research study did use a dismantling design to examine the comparative effectiveness of a parent training program only (PT); PT plus children's social skills program (CT); PT, CT, and a family skills training program (FT); and a no-treatment control group. Using this four-group randomized design, the investigators (Kumpfer, Molgaard, and Spoth 1996) found that the combined program (FT) was most effective, but each component was most effective in changing the variables it was designed to affect. Hence, the children's program improved the children's social skills; the parent training program improved the parent's parenting skills and parenting self-efficacy, discipline methods, and children's acting-out behaviors; and the family program improved the family's communication, organization, and supportiveness. It would be helpful to have a more internal examination of component effectiveness in other family programs.

Research on Family-Focused Versus Child-Focused Interventions

Major questions still exist in the research literature (Kumpfer, in press*b*) about whether to focus scarce prevention resources on the child-only, parent-only, or total-family approach. Many prevention providers prefer to work only with children in school or community programs. Family intervention researchers (Szapocznik 1997) strongly believe that to have a lasting positive effect on the developmental outcomes of a child, it is essential to improve the family ecology or context by creating more nurturing and supportive parent-child interactions. Parental support and guidance by prosocial, well-adjusted parents provide a sustaining positive influence on children's developmental trajectories and risk status for drug use. Although peer influence appears to be the final pathway to drug use as found in many etiological studies (Kumpfer and Turner 1990/1991; Newcomb 1992, 1995; Swaim et al. 1989), the primary reason not to use drugs appears to be positive family influence (Coombs et al. 1991).

There also is suggestive evidence that bringing a group of at-risk youth together in a child-only group creates a negative contagion effect (Gottfredson 1987). Dishion and Andrews (1995) randomly assigned 119 at-risk families with 11- to 14-year-olds to one of four intervention conditions: parent-focus-only, teen-focus-only, parent-and-teen focus, and self-directed change. Results showed positive longitudinal trends in substance use in the parent-focus-only group, but suggestive evidence of negative effects in the teen-focus-only condition. These results stressed the importance of involving parents and reevaluating strategies that aggregate high-risk youth, particularly in groups where insufficiently trained staff cannot control and improve group norms or influence. Social learning theory (Bandura 1986) suggests that youth need exposure to positive adult role models, such as parents and group leaders, who can provide opportunities for youth to learn behavior skills and social competencies and for exposure to higher levels of moral thinking (Levine et al. 1985).

In addition, in the original 1982-1985 NIDA SFP research (DeMarsh and Kumpfer 1986; Kumpfer and DeMarsh 1986; Kumpfer 1987, pp. 1-71), evidence suggested that increased exposure to high-risk peers with poor social competencies and moral reasoning reduced the positive gains in youth negative behaviors from the SFP parent training, although positive social skills increased more. This critical research and practice question has not been addressed with children younger than 11 years.

Longitudinal Studies of Family Intervention Effectiveness

The long-term effectiveness of family programs should be examined by means of improved longitudinal design and recently developed measurement and data analysis technologies. Unfortunately, there was no long-term followup funded in the original 3-year NIDA research study. The positive results were based on only the pretest and posttest changes in the youth and parents. A 5-year followup (Harrison et al. 1995) of SFP was implemented on a three-county Utah State grant funded by CSAP. Even though the abbreviated interview survey data collected suggest amazing longevity of positive family functioning and maintenance of principles and behaviors taught in the SFP, the data collection did not include the full parent and youth outcome assessment battery so critically needed to determine the true long-term impact on youth drug use.

Best Methods for Recruiting and Retaining High-Risk Families

Many prevention practitioners believe that it is "monumentally discouraging" to work with families and that they are almost impossible to recruit and maintain in family interventions. This is partially true, particularly in the first cycle of implementing the program, before the "bugs" are worked out and the staff becomes more competent, but many family skills training interventions, including the SFP, report retention rates of around 82 to 85 percent (Kumpfer, Molgaard, and Spoth 1996; Aktan 1995; Aktan et al. 1996; McDonald 1993).

Few family researchers have conducted systematic examinations using strategies of recruitment and attrition factors essential to successful program implementation. One notable exception is Spoth and associates (1996) from Iowa State University, who evaluated engagement and

retention using marketing research strategies on data from the Iowa Strengthening Families Program. They have conducted many studies on the ISFP, including the following:

- A prospective participation factor survey (Spoth et al. 1995) found that perceived program benefits and barriers were strong predictors of inclination to enroll and that stated inclination to enroll and parent education level were the strongest predictors of actual participation.
- A refusal survey (Spoth et al. 1996) found that time and scheduling conflicts are major reasons to refuse to participate, as is gender (fathers see less benefit in family interventions than mothers).
- A risk by participation and retention analysis found no differential participation or attrition for higher risk families in contrast to common assumptions about the difficulties of attracting and retaining high-risk families (Center for Substance Abuse Prevention 1995).

Additional research is needed on special recruitment methods to attract and retain high-risk families, as discussed by Kumpfer (1991) in *Parenting Training Is Prevention*. Methods used to reduce barriers to recruitment and to retain high-risk families for many selective prevention programs like SFP include child care, transportation, meals, payments for testing time, graduation completion gifts, prizes for completion of homework, and small gifts (pencils, pens, stickers) for the children, earned with good behavior. Special family outings or retreats are also major attractions in family programs that increase family participation.

Who Benefits Most From Family Interventions?

In addition to addressing component effectiveness, family-focused intervention research should be directed toward a better understanding of intrafamily variables such as which types of clients benefit most by the different intervention components. Hence, it is possible that the different components of SFP will be differentially effective with different types of parents and youth. As did prior studies (Aktan et al. 1996), future studies should include outcome subanalyses by participant covariates to determine whether family interventions are more or less effective for different types of participants using post hoc, statistical quasi-experimental analyses, as recommended by Cook and Campbell (1979). These covariant analyses could examine program effectiveness by program site, multiethnic status, parental drug use, parental depression, educational status, parent and child gender, single- versus two-parent families, parental criminal status, and child's baseline level of risk and protective factor status.

Methods for Improving Program Implementation: Health Services Research

Most NIH research institutes, including NIDA, have a separate set-aside for health services research that examines questions related to improving the implementation and dissemination of model research-based programs. Researchers of model family programs should consider research designs that will allow them to examine and answer these important program implementation questions as subaims of their studies. These subaims can be examined through planned comparisons of process data linked to outcome data across the experimental groups to examine research questions concerning differential recruitment and attrition rates by demographic client variables (e.g., gender, education level, ethnic status) and program components; variables leading to increased program involvement; differential consumer satisfaction and participation rates compared to outcomes; factors related to fidelity of the program implementation across sites; impact of trainer variables (e.g., years of experience, delivery competence, perceived warmth and supportiveness by clients and evaluators) on program process and outcome variables; and other agency and staff variables recorded in forcefield analyses (Gottfredson 1986) affecting implementation quality. A strong process evaluation is needed to examine these important subaims.

Need for Cost-Effectiveness and Cost-Benefit Studies

Pentz (1993) and the staff at NIDA have strongly encouraged prevention programs to collect and report cost data. Conducting comparative cost-benefit analyses on major prevention interventions would help providers make better decisions about where to allocate scarce resources. There is little literature documenting the cost benefit or cost-effectiveness of drug abuse prevention because of difficulties measuring and devising monetary values for comparative prevention intervention outcomes (Kim et al. 1995). According to Apsler (1991, pp. 57-66), there have been no rigorous cost-effectiveness studies of drug prevention or treatment. The only published cost-effectiveness study (Hu et al. 1981) comparing different types of drug prevention (alternative, education, intervention, and information) contained no control group. An analysis of the benefits of different crime prevention strategies suggests that parent training is the most cost-effective strategy for the prevention of delinquency (Greenwood et al. 1994). Because of the overlap of etiological precursors of delinquency and drug use, it is highly likely that the most cost-effective strategy for drug abuse prevention is also family-focused approaches.

Benefit-cost analyses are easier to calculate because they require no control groups or comparison of interventions. Although Russell (1986) challenged the economic benefits of health promotion and prevention programs, Kim and associates (1995) calculated that the benefits of drug prevention exceed costs by a ratio of 15 to 1. Kristein (1997) reported a benefit-cost ratio of 1.8 to 1 for smoking cessation programs, and a larger ratio of 2.3 to 1 for employee assistance programs for alcohol misuse.

As discussed by Plotnick (1994), the program benefits in a cost-effectiveness analysis should be based on the magnitude of the statistically significant differences or effect sizes between the different programs by context and mediating and outcome cluster variables. The costs saved (benefits) attached to reductions in negative youth outcomes can be calculated for *direct costs* (e.g., medical, criminal, productivity, community service, and opportunity) with use of national economic cost data (Rice et al. 1991), local cost estimates for drug use and drug-related legal system costs, economic costs (loss of productivity), and medical costs; and *indirect costs* as recommended by French and associates (1991) and used by French and Zarkin (1992) for TOPS. Prospective service utilization rates (e.g., medical, mental health, legal, and community services in the prior year) can be collected from program participants on regular pretest and annual posttest questionnaires to determine alternative explanations for program effects and also for benefit analyses.

Readiness of Communities and Agencies To Implement Family Programs Effectively

The readiness of communities and agencies or schools to implement family programs can differ widely and affect their implementation success. Any researcher with access to many different sites interested in implementing family programs should consider a research design that allows for examination of variables in the community and agencies that would affect readiness to implement model research programs with fidelity and effectiveness. A review of factors affecting community readiness and ways to enhance community readiness for prevention programs is available in a new publication from NIDA, *Assessing and Enhancing Community Readiness for Prevention* (Kumpfer, Whiteside, and Wandersman 1997).

Lack of Research Funding for Family-Focused Prevention Approaches

Prevention programs have typically targeted young people in school-based, universal approaches. Over the years, a few family intervention approaches have been supported by NIDA and NIAAA, notably those of family programs developed by Drs. Alvey, Bauman, Hawkins and Catalano, Dielman, Dishion, Kumpfer, Szapocznik, and Zucker. Because of a major initiative at NIDA to support family-focused prevention efforts, and the increasing frustration of school-based researchers [trying] to get long-lasting and powerful effects, a number of new family research projects have been funded to Drs. Molberg and McDonald, Eggert, Whitbeck, and Spoth. The results from these research grants

may help to strengthen support for this family approach.

Most of the funding for family-focused selective prevention programs has come through foundation or CSAP demonstration or evaluation initiatives, which generally do not require research designs with random assignment of subjects. The selective prevention approaches that have been rigorously evaluated have shown positive impact on many risk factors (see Goplerud 1990; Center for Substance Abuse Prevention 1993; Kumpfer 1997; and Lorion and Ross 1992, for reviews of effectiveness of many selective prevention programs for drug abuse prevention).

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CONCURRENT SESSIONS

Work Group Discussions

Introduction

Each of the five science-based topics presented at the plenary session formed the focus of a work group: Risk and Protective Factors, Critical Factors for Prevention Success, Prevention Through the Schools, Prevention Through the Community, and Prevention Through the Family. Each work group was moderated by a NIDA staff person and included a panel consisting of a scientist from the plenary session, a National Prevention Network (NPN) State representative, and a community leader.

The work groups opened with the NPN representative and the community leader each giving a 5-minute response to the scientific presentation given during the plenary session. These individuals discussed their impressions of the session and how they thought the information could be relevant to their situation as a State or community representative. They also were asked to respond to the following questions:

- What did you think about what was said? Did the findings fit with your perception of the nature of the problem and proposed solutions?
- Is it feasible for you in your position to do something with this information?
- Did these findings suggest changes you could make to programming at your level?
- What are the barriers to doing so? What untapped resources could be put to these efforts?
- Do you have suggestions on how to facilitate the implementation of these types of programs?

Following this presentation, the scientist on each panel was asked to comment on these issues and to clarify his or her presentation from the plenary session. The panel members then led a discussion with work group members about specific implementation or application issues, in addition to answering any audience questions about the topic. Additional questions to be explored with work group participants during this discussion included the following:

- How would you go about utilizing or implementing the information gleaned from this session?
- Who are the key community people who would have to be involved for successful utilization or implementation, such as the school system, mayor's office, etc.?
- Are these types of interventions financially feasible for your community?
- Is your community aware of the rising trends in adolescent drug use, and if not, how can you raise awareness to attract the support that you need for your programs?
- What suggestions or insights do you have from the policy or practice arena that could further the science in this area?
- How do you access research findings on prevention? Are these findings in a useable format? What would be helpful to you on an ongoing basis?
- What about the future? What new areas of research would help you in your work? What are your information needs? Are there particular topics of research or information that you need?

Issues and recommendations for research and practice were recorded and reported by the panel

scientists during the open forum on the second day of the conference.

Work Group on Risk and Protective Factors

Panel:

Robert J. Pandina
Rutgers University, NJ

Sherry T. Young
National Prevention Network, UT

Carol N. Stone
Regional Drug Initiative, Portland, OR

Moderator:

Meyer Glantz
National Institute on Drug Abuse

Sherry Young

We were asked to address what was said during this morning's presentations. I have to point to Dr. Leshner's talk when he defined prevention as a process of educational and behavioral change and the realization, as Dr. Pandina stated, that risk and protective factors are not fixed and are subject to change. Those two things are what we need to talk about when we talk to States, counties, and communities because that is the most simplistic way I have heard anyone explain this research, which actually becomes pretty complicated, or appears to be complicated.

I would like to have heard more from Dr. Pandina about the community, as well as the individual, in risk and protective factor research. I learned something new from his discussion of markers, modifiers, and mediators. In Utah, we are using the research findings to influence changes at the State, county, and community levels. We also are working with the Department of Human Services, under which our Division of Substance Abuse falls, the State Office of Education, Criminal and Juvenile Justice, and most recently, the Department of Corrections, in learning how this research can be applied to services. It is important to see what attitudes and behaviors will work across the board.

Barriers, as Dr. Leshner stated, are important. We do not always say the same things or sing the same song. I have noticed in Utah, but not solely in Utah, that some people in the field of substance abuse prevention contradict what this research says about risk and protective factors. They sometimes influence others to discount the research on risk and protective factors. I was happy to hear Dr. Botvin say that we must identify what puts the children and schools at risk. I have heard people interpret his research differently, so it is good to hear him explain that. People in the field who contradict research tend to be selective about what they present, and they most often leave out the risk part of risk and protective factors.

We still do not know enough. We always want to know more, and we are not doing as good a job as we could in disseminating the information that we have. I would encourage NIDA to continue to increase support to those who collect the data and who understand the benefits of this as a science and how important this research is in developing credible prevention systems.

Carol Stone

I am glad to see that there are people here who are with community coalitions. I will address the information that I received today from the community coalition perspective. First of all, I did not hear anything today that was not useful or will not be useful to me when I get back home to Portland. It certainly fits our perceptions in terms of the work we have done and our perceptions of the nature of the problems and their solutions. There are pieces coming from the community coalition perspective. There are pieces of this work that we and other community coalitions across the country are involved in and can support that we did not hear about today. But we certainly can support some of the things that we have heard discussed.

We have heard that the most effective prevention programs are school based. From a community coalition perspective, there is certainly no argument with that. But there is a lot that a community coalition can do to build resiliency factors, change policies, and change the social environment that will support those school-based prevention programs. I can give you examples of that.

A community coalition is one that pulls together the leadership from across all sectors in the community, including the health care community, faith community, government leaders, business community, prevention and treatment programs, and schools. They pull together everybody so that there is widespread community support for prevention and so that, as Dr. Leshner said this morning, there is truly an environment that is created so everyone can "sing the same song." That is absolutely crucial. One of the reasons the Regional Drug Initiative was formed in Portland 10 years ago was because the schools were saying, "Do not leave this all to us. We really need some more help on this issue."

In addition to a community coalition supporting what is already in existence, there is much more of an opportunity for making policy changes. In most community coalitions—and there are thousands of them in the United States—there is a real commitment on the part of coalition members to make changes within their spheres of influence. I have seen this in Portland with the 3,000 employers we have worked with on drug-free workplace programs. This is one of the components that can support what is going on in the schools.

Drug-free workplaces can be sites for parent training, parent gatherings, parent support, and getting parents more information about how to set limits in their own homes. In Oregon this year we have seen some tragic results of parents who have lost children—and it seems like this year has been a particularly bad year—because they thought it was okay to send their son or daughter to a keg party that was being sponsored by friends who they thought were responsible. Or they thought it was responsible to host a keg party for their high-school-age children, and it simply is not responsible, as we all know.

There are other kinds of things that community coalitions can do, for instance, including youth in presenting the messages and in becoming positive peer influences, as well as having them be part of changing that whole social environment and helping to build resiliency factors.

I think it is certainly feasibile to work with this information. I know that I personally am going to take some of the latest research information we have heard and start looking at ways to update coalition members. It seems that there is constantly more information to learn. There has been some validation of several programs I have seen that deal with family management problems. I know that there is an excellent one in Oregon that is based on family interventions, working with the schools, working with families, and working with employers. It is based on building family strengths.

In looking at barriers that we are facing, identifying high-risk kids is really touchy and can be damaging, even though there is a real need to make sure that we offer prevention programs in all areas where there is risk.

There certainly is always a need for continued funding. More than anything, and I hear this all over the country, there is a real need to fund the evaluation of program results. It is difficult to prove that what you are doing works without that evaluation. For some reason, evaluations are not something that people usually want to pay for.

The other idea that was touched on briefly was the political reality of going for the hard policy changes within a community that might decide that they cannot support you any more because you are too outspoken and you are trying to make changes that are too radical.

Robert Pandina

One of the biggest gaps that this conference is trying to address is the need for people like me and people like you who do prevention trials research to meet together in the same room to discuss what scientists have to offer. I mean this seriously—we work for you. The big problem is finding a forum or venue where we can meet together.

In New Jersey, we have a large community coalition program, and at our university we are trying to work with both our State and Governor's Council. The basic mechanism is to bring these groups together to have a real exchange of information. We have a certain kind of information to give you, but you also have a certain kind of information to give us that probably will enrich our ability to develop the models you need.

In all honesty, and I have said this at other forums, the real challenge is not to take $1 million and deliver an intervention service to 100 kids.

The real challenge is to take $100 and find a way to provide an intervention model for 1 million kids, because that is more realistic at the community level. The other thing that I hope will come out of this conference is a recognition that we who do this research, which sometimes is thought of as rather esoteric, do have an appreciation for your efforts and are working hard to bring you useful information. Also, by communicating together, you can tell us from your perspective what you need so that we can help you adapt what we find at the research bench and implement it at the community level.

With regard to evaluation within the community perspective, we have fought hard to develop evaluation strategies within the basic science and applied science milieu. We are now at another stage in evaluation development. That is, trying to develop evaluation designs that can be applied to programs at the community level that do not traditionally fit the clinical trials mode. It is a real challenge. More than once we have been called in by people who want to know whether they are being effective in a program that is already operating. They ask us to evaluate it, and we have $100 with which to do that. You can appreciate the complexity of the research that you saw today and the resources that are necessary to do these kinds of evaluations. We need to develop an evaluation model that can be extended to the communities, but that is going to take a lot of thinking on our part and a lot of adaptation. I think that is a tool that we need to develop, and we are going to need your help to develop it. We need to find common ground or common ways of communicating with one another, and I think we are much closer to it than we have ever been before.

In a way, I believe that the building blocks are in place now. Conferences like this are an attempt to get us together to find a way to forge ahead on several levels: first, to exchange information so you can take what we now know and apply it in a practical sense, and second, to figure out how we can develop evaluation models and learn more about what your needs are.

I do not do prevention trials research as such. So when I hear what you are saying and I look at the community-level risk factors, I am concerned about how to take what we know about risk factors and give them to your community alliances so that you can use that information to change your communities. There is no question that risk factors can be identified in the communities. Risk factors come in all sizes and shapes, and identifying them requires everything from understanding the nature of the community to understanding where the real community leadership is and how one can affect the leadership.

I will give you one example. My colleagues Nancy Boyd Franklin, who is an African-American woman doing work on family interventions, and Brenda Bry have been able to contact a group in a New Jersey township that is heavily African-American in terms of its culture and its investment in the faith community. They have had tremendous success in developing a drug prevention intervention involving the faith community and working from that group back to the schools to which they could not gain access. Because the faith community was strong in that community and because they could mobilize the community leadership, they were able to identify a resilience factor, a way of gaining access to the schools and developing a school-based, faith-based, and general community program. This would not have been possible if they had not recognized the strengths and weaknesses in the community and if they had not used the strengths within the faith community to reach the schools.

So when I talk about things like the availability of prosocial activities in schools and communities and the social norms, attitudes, and availability of support for prosocial values, I do not mean just in the school or the family but wherever you can find them in the community. The generic principles that I talk about can be applied at any level of analysis, including the community level, when looking at factors like prosocial values or the availability of constructive after-school activities.

More should be done to identify those kinds of factors, and a different kind of paradigm should be developed for learning how to intervene at the community level, because it can have an incredibly powerful influence. However, researchers, and especially prevention scientists, typically have a difficult time getting into the communities where the real leadership exists. It is hard to

identify and meet community leaders, but we need to talk to these leaders so that we can tailor prevention programs to fit the needs of specific communities.

Risk and protective factors may be the same, but how one implements prevention programs may be quite different in different communities. One must be very creative about that. This is one of the next areas where prevention programs must go. After all, schools do not necessarily define the community. Communities are defined by many more factors, including the generic factors that I listed in my presentation.

For example, in New Jersey we have two places where kids meet—cemeteries and malls. Whenever I think we are doing very well in some prevention arena, I go to the different malls in New Jersey and sit in the parking lots, typically near the entrance to the movie theaters. In this way I can get some estimate of what is going on in that community. We need to do something in this venue because this is where the kids are. Someone said today that one of the reasons to use school-based programs is because that is where the kids are. But the kids are also in other places, and that is where they do the kinds of things that are considered to be high-risk behaviors.

You will notice that I never talked about "high-risk kids" today. I cannot think in those terms because it does not make sense to chop up the world that way. It is more a question of the factors to which some kids may be exposed. Generic risk and protective factors and those models go well beyond individual and biological issues and can be specified and identified at the community and State levels.

Our coalition has been very effective in convincing our Governor that resources ought to be set aside and distributed at the community level. One of the problems I see in that approach is that they need the technology to know what community programs to choose so that those dollars go as far as possible.

These are different kinds of approaches, but they fit well within the risk-and-protective-factor model. You have to be a little bit more generalized in thinking about that, and a little bit creative about extending yourself in that model, but it works very well.

A community, in a way, is an organism. It is made up of parts. Those parts fit together, and there is an outcome based on those parts. There is a dynamic in the community.

I think this kind of science can go a long way to helping with that kind of analysis. I would still offer that the risk factor approach starts with an analysis of those factors and how they operate. From that will flow the ability to pick out the menu of what we have from either family-based programs or school-based programs and adapt them to the communities. The principles are the same. They sound different, but they can be generalized to extend very nicely to the community, the State, or for that matter, the regional level.

Work Group on Critical Factors for Prevention Success

Panel:

William B. Hansen
Tanglewood Research, Inc.

Barbara Groves
Oregon Together, Oregon Office of Alcohol and Drug Abuse Programs

Betty S. Sembler
Operation PAR, FL

Moderator:

William Bukoski
National Institute on Drug Abuse

Barbara Groves

In Oregon, we have a two-tiered focus. We have county prevention funding and resources, and we have local community coalitions, which we call the Oregon Together Project, that began as part of the Hawkins and Catalano research in 1988. We have been doing the risk-and-protective-factor focus framework since 1988 and have been collecting data since that time. We are thinking about using all of the prevention strategies, information dissemination, and prevention education, and we also are looking strongly at collaborations. We do a lot of networking with the Department of Corrections and the Department of Education. We just started this year involving managed care organizations in prevention. We have written into our contracts that

managed care organizations have to provide drug abuse prevention services.

We are working on the risk and protective factors with other organizations, including Warm Springs, our largest Native American reservation, which also has a Robert Wood Johnson Foundation grant. We are working to connect with that community and elaborate on what they are doing at the local level.

Our community contracts and county-based contracts require that they supply us with the prevention framework that they are using. We require all of our funded projects and programs to have an identified structure. It does not have to be the risk-and-protective-factor focus framework, but it does have to be research based.

We also require in our contracts that evaluation outcomes be identified. We require that the projected outcomes be described, and we monitor those outcomes over time. The bottom line is that we are trying to help the communities learn to sustain themselves. As we all know, Federal funding is diminishing all the time, and, certainly, State funding is not great. In Oregon, all of our prevention program funding is Federal funding. We do not get a dime of general fund dollars for prevention. Therefore, we are especially interested in trying to develop community resources. In fact, a lot of our local communities tell us that the dollars are not as important as the other resources we can bring to the table.

New communities that we are working with are the Asian-American and Pacific Islander American communities in Portland. We are having to relearn how to do prevention with them. It is different than working with the Native American or African-American communities, and it does not necessarily fit the social development models. So we are doing some different things, learning from them, and taking our lead from them.

As a State agency, we see our job as bringing the resources to the table and working as a partner. We are trying hard not to dictate and tell everyone what to do and to give them the flexibility. We want to be able to answer their questions, bring them resources, strengthen local capabilities, and truly be a partner with them. We see that as our primary function in addition to coordinating with other State agencies.

We are working with local children, the Commission on Children and Families, and juvenile justice, and they are all talking about risk and protective factors. We are all using the same language now.

We are coordinating budgets, staff people, and evaluation requirements so that one community does not have to report on one contract one way and develop a totally different report for another. We have been working hard on that in the past 2 years.

Collaboration is key. As folks have said, we are not all dancing at the dance, but we are in the same ballroom. Some of us are doing the rumba, and some of us are doing the jitterbug. But we all realize we need to be there together and that there are different ways to work on prevention as long as we all know the basic framework and have the access to the information. I think one of the biggest barriers is that most of our people at the community level are volunteers, but that is the nature of prevention [work].

Most people in Oregon truly believe that evaluation is important. I do not think folks are questioning that anymore, but how to do it is the issue. The minute they hear evaluation, they get confused about research and data and see them as the same thing. When we show our volunteers those slides with the statistics and data, they think, "I cannot do that." We are doing a lot of training right now to teach our local folks how to do evaluation. It can be as simple as a pretest and posttest or can involve more statistical data, but it still scares them. They think they just cannot do it. They do not have the staff time to do a lot of this, especially if they have only a .01 full-time equivalent who is assigned to work on this.

The major question is how to teach community volunteers to do evaluation without an infusion of staff and money and how to do it in a culturally sensitive manner. There are few data on the cultural aspects of prevention. The risk factors may be the same, but prevention programs must be implemented differently. We are learning that in Oregon in our work with Native American, African-American, and Asian communities. It is difficult to develop such programs and track them without more resources and dollars.

There are multiple levels of evaluation. One is to look at drug use; another is to look at what is targeted and whether there is progress in achieving risk factor changes.

Work Group on Prevention Through the Schools

Panel:

Gilbert J. Botvin
Cornell University Medical College, NY

Jodi Haupt
National Prevention Network and Missouri Division of Alcohol and Drug Abuse

W. Cecil Short
National Association of Secondary School Principals, Riverdale, MD

Moderator:

James Colliver
National Institute on Drug Abuse

James Colliver

The purpose of this work group is to discuss the implementation and application of school-based prevention programs, identify issues, develop recommendations regarding prevention research and practice, and make recommendations for new materials and services.

The panel leading the discussion includes Dr. Gilbert Botvin, a prevention research scientist, Ms. Jodi Haupt, a State representative of the National Prevention Network, and Mr. Cecil Short, a community leader. Dr. Botvin is the director of the Institute for Prevention Research at Cornell University's Medical Center in New York City. He has many years of experience as a prevention researcher and he is the developer of the Life Skills Training program, a school-based approach to drug use prevention. Our community leader, Cecil Short, is president-elect of the National Association of Secondary School Principals and a middle school principal in Riverdale, MD. Jodi Haupt, our National Prevention Network representative, is a program coordinator at the Missouri Division of Alcohol and Drug Abuse. Ms. Haupt and Mr. Short each will have 5 minutes to respond to Dr. Botvin's speech from this morning; Dr. Botvin will then take 5 minutes to comment on the issues raised by the other panelists and clarify any points from his presentation.

Jodi Haupt

I appreciate the coordination of all the presenters and their consistent message. It appears they took advantage of a "teachable moment" to show us true modeling of prevention by presenting a consistent message. The presenters touched on a number of common [themes]. The key points, especially from my perspective with a single State agency, include the following: (1) prevention has to be about what works; we need to replace ideology with science; (2) strategies must be long term, with booster sessions in following years; (3) there must be consistent messages beginning early with young children; (4) prevention must be culturally specific and must target all forms of drug abuse, not just single out one or two; (5) there is a need for parental involvement; (6) the problem is complex and its solution means a coming together of the biological and behavioral sciences; (7) tailoring of the programs is critical—something that is key to Missouri now.

In Missouri we often miss the boat by not putting the cards on the table and telling kids how they are influenced by their peers and the media. In my State of Missouri, Anheuser Busch represents a lot of liquor industry campaigning.

In regard to Dr. Botvin's presentation, I was impressed with the 40- to 75-percent initial reduction, the 6-year duration of results, and the use of booster sessions, which is something we have not done much with in our State. I will talk to the Missouri Department of Elementary and Secondary Education about the booster idea.

At some point I would like to address some programming specifics, that is, what might be contained in the teaching techniques with regard to instruction and reinforcement. Does that imply a consistent message—maybe in other parts of the school setting, in other curriculums, in the math classes, in science—or is it something entirely different?

I also was impressed with the discussion about barriers because sometimes we do not think about those, particularly barriers of lack of training, limited resources, and low teacher morale. With

regard to the theme of starting prevention with younger children, I would also be interested in knowing whether this program has been replicated with children before they reach seventh grade.

In the area of additional resources, I would like to know more about the issue of parental involvement. In Missouri, many adolescents in treatment programs have a parent who taught them drug use in the home. This is further exacerbated by peers, the media, and other influences that teach that behavior. There is real significance in learning drug-use behavior at home, and I wonder whether something might be done in that area with additional resources.

I am excited about going back to Missouri and working with other organizations that we should have been working with all along. We address the community-based perspective, of which school is a big part, but we have been remiss at not integrating and making it a comprehensive approach with our education department. This as an opportunity to talk to our schools and our departments within State government.

Cecil Short

I have been a practicing administrator for more than 27 years and have an appreciation for this type of program, which heightens the awareness of school administrators. I represent an organization of more than 42,000 school administrators. My comments will be a commendation to Dr. Botvin for sharing his thoughts. I would also like to issue some challenges.

This is a drug culture. The term "the war on drugs," should probably be changed because the problem of drug use involves the human dynamic, not necessarily the military dynamic or related metaphors. On a national basis, I would challenge distinguished lecturers like Dr. Botvin to continue to espouse the message from the drug culture perspective, using the human dynamic.

Especially noteworthy in this discussion are drug resistance skills, because in my opinion, that is what it is all about from the school's perspective. I have not heard a presenter address drug resistance skills. At the secondary school level, we hear about students who are part of the drug culture at the elementary school level. That is frightening.

I challenge the speakers to involve other stakeholders in this drug culture. The primary stakeholder, as I heard this morning, centered around school personnel, but today we are dealing with young parents who cannot demonstrate the coping skills to meet the needs of their children, which is a different phenomenon. After having served as a school administrator for 27 years, I have come from a dynamic of disciplining children by just clearing my throat to having to send for a security guard. "Security guard" was not even in the vocabulary of the school administrator 10 years ago. There is a different culture today.

I like the idea of social influences. The national slogan "Just Say No" will not do it for people who see a profit motive in the drug culture, and it will not work for a kid who makes more money in 1 week than the school principal. We have to do more than that. There has to be, in my judgment, treatment or exposure from a cultural health perspective.

I think we need to do more instruction in peer group types of environments, because the peer group does have a tremendous influence. Bringing youngsters into a classroom or an auditorium for a once-a-year program—and I have a great program, the DARE program—may not be making an impact.

I like the idea of peers. We need to find the peers of these youngsters and speak to them. More information should be given to the school personnel about drug resistance skills, comprehensive life skills, and the social influences approaches.

In closing, we have to be careful about the type of program approach that has a short shelf life. Every year there is a new paradigm shift and a new "alphabet soup." We need to have a program, run it from A to Z, and stay with it. If it is important, it ought to become a national movement, and everybody ought to line up behind it and march to the same drummer. We are in the parade, but some of us are marching to the beat of a different drummer.

Gilbert Botvin

Let me respond in the opposite order and pick up on some of the themes that Mr. Short mentioned, especially the last one, which resonated with me and which has concerned me for a long time. I said today and have said, humorously at times, in talking with various folks, that we have a real problem as a country. We have a national case of ADD, or attention deficit disorder. To some extent, the media may be more responsible than anyone else. Maybe the media, and not the public, are the ones with ADD.

Clearly, someone has difficulty paying attention to problems for a reasonable period of time. No sooner do we begin to work on solving one problem like drug abuse, teen pregnancy, or AIDS, than we are off to working on another problem. Almost every year there is a problem of the year. I think we need to get away from that mentality. We are going to make progress only if we consistently focus on these problems. We may need to focus simultaneously on many of these important public health problems, but clearly we have to set a national priority. We have to have an agenda that allows us to work on these problems until we can make some progress and not just bounce from one thing to another.

It is clearly important that we refocus the way in which we approach the problem of drug abuse prevention. This war on drugs metaphor has been an unfortunate one. I agree that it does not adequately capture the social aspects and the dimension of the problem.

What we are talking about is trying to develop interventions that deal with the whole kid, interventions that do not just teach kids to say "no" or beat them over the head with facts, but interventions that deal with real-life concerns and give kids the skills they need to succeed in a frequently hostile environment, whether it is at home, at school, or traveling to school. Unfortunately, many of our kids live in a hostile world. We need to give kids the skills to cope with that world and to succeed to the greatest extent possible. So we need to think about this in a different way. Hopefully, the kinds of messages coming out of this conference today will help us to see things in a somewhat different way.

Involving the various stakeholders is a real challenge to all of us who do research. We have one set of skills. We know how to do research. We know how to organize and conduct studies. We know how to distill the literature, develop theoretical models and intervention programs, conduct evaluations, and interpret the results. We even know how to write articles for scientific journals. But what we do not know how to do is talk about what we do in a way that is intelligible to people who have to go out and make a difference. We sit around at conferences and talk to one another and get excited about high P-values and fancy multivariate statistics. But we are not saying the kinds of things that can make a difference in the real world. We have to move from our ivory tower situation to the real world and to talking with people like many of you here today who can make a difference in the real world.

We have talked at this conference about schools, but clearly there are other stakeholders and gatekeepers. We have formed alliances so we can all work together to see that proven prevention approaches get more widespread utilization. We need to involve not only the schools but also different groups in the community.

You are quite right that in many of the inner cities and in some rural populations parents are only a little bit older than the kids themselves. They do not have the skills. They may have problems of drug abuse. They may have a whole array of deficiencies with respect to many of the personal and social skills that we think are important. In those instances, we need to do more than just provide an intervention for the kids. We have to figure out ways of involving the family, getting them to have a stake in this, and helping them with their problems. There are many good family-level interventions that are currently being tested that can help to do that.

Our work only addresses kids in school, although we have made some efforts to involve the family and work with parents through videos and homework assignments. However, it is difficult in many situations to do a whole lot. If you come from a normal family, that is fine. If you come from a family like the one on television in "Third

Rock From the Sun," which is a little bit wacky, that is something else. If you come from a family that is totally dysfunctional, where the parents are using drugs, that is a situation that almost seems entirely hopeless and clearly is difficult for us.

Even at our best, given the fancy statistics or the dramatic results that some programs produce, if drug use is cut in half, that is great, and we should all be excited about that. But that still leaves half the kids who are using drugs. Some kids may come from dysfunctional families or from families where one or both parents are using drugs. We may have a very hard time reaching those kids.

We clearly do not have the kinds of interventions that can make an impact on hardcore, high-risk kids; we need to do more work in those areas. We need to move beyond just saying "no"; that is not enough. That is one of the main messages I hope that you can take away from my talk this morning. You need to do more to reach out and work with the whole kid, because if we do not deal with their whole lives, if we do not give them the skills to cope with life and to succeed in the worlds in which they move, we are not going to have an impact on this great national tragedy that we see before us. I certainly agree with the importance of focusing on peer groups. In a lot of the work that we do, we attempt to work with kids within a group setting, utilizing peers and taking advantage of issues that may relate to peer socialization.

In response to some of the points raised by Ms. Haupt, it is important that we disseminate information about what works and the content of our prevention programs as well as about the way in which these programs can be implemented. There are various teaching techniques that can be used in prevention programs, and some of these techniques may be less effective than others. In our own work, building on work in some of the clinical areas, we have found that there are certain approaches to skills training and certain techniques that have been found to be helpful in past research.

We have imported those approaches that come from a clinical setting and have used them in what some people have referred to as this "psychoeducational program." For example, we are teaching kids skills for dealing with stress and anxiety and managing dysphoric feelings of depression. We are trying to teach these skills proactively so that kids have the ability to manage their own emotions, their own feelings, and the various issues that confront them. But we have to do that in a way that is going to be effective using the right techniques.

It is important to have reinforcement in all these programs; that is part of the importance of a booster intervention. However, in the kind of work that we have done, we have not had multiple levels or multiple channels of communication that would help us provide reinforcement of these various messages because of the nature of our intervention. Multichannel, multicomponent interventions are needed to provide various ways of reaching not only the children, through the schools, media, schoolwide support activities, and after-school programs, but also the parents—reach the kids by reaching the parents.

I wish I had an answer to your question of how we should deal with the many barriers. I do not have a great idea of what we can do to solve problems of inadequate resources or low teacher morale. I know what would help to change that, but I think you are talking about systemwide changes and no small amount of money that would be required to do that. You need to change the school environment, make it more user-friendly, make it a better place for kids, make it a better place at the same time for teachers, as well, so that they feel more empowered and enthusiastic about their work.

Many of the teachers in New York City who are hard-working, dedicated teachers have a hard time when there is no place for them or their students to sit. Those deplorable conditions have to change. It is difficult to learn and to conduct prevention programs under those conditions.

These barriers will take resources beyond those that are available, but there are things we can do to enhance the fidelity of implementation. One is to be careful in selecting teachers to implement programs like this. You need people who are enthusiastic, who want to be involved, and who do not have to have their arm twisted by the principal or the superintendent to do this.

A few years ago at the request of a school superintendent, I was giving a presentation to his principals about a program that we were about to conduct under some Federal funding. They were enthusiastic. Unfortunately, as it turned out, he was super-enthusiastic, and the more enthusiastic he became, the less enthusiastic they became. It turned out that there had been a history of "labor/management difficulties"—bad communication, bad faith, and other problems. So this well-intended superintendent, who up until that point I had been thrilled with because he loved what we wanted to do and was very enthusiastic, did something that turned out to be irreparable and unforgivable. He essentially mandated the program for everybody. That became a kiss of death for us. In most situations, you cannot mandate programs and in this case, his enthusiasm and zealousness, although wonderful, turned out to be a problem for us.

You have to bring everybody along, and people have to have a sense of ownership about these programs if they are going to be involved and excited. You should select teachers who want to be involved, who do it voluntarily, who have good teaching skills, and who have good rapport with kids. Ideally, you want to get teachers who have high credibility with kids, who are even charismatic. They are great teachers, and they are going to do a great job in implementing the prevention program, even if they do not have any background in drug abuse prevention. You just need good people with good hearts who are committed. That is critically important.

It is also important to train teachers properly so they know what they are doing and why they are doing it and so they have a sense of hope and optimism. After doing this for many years, we are able to show teachers that this kind of program will make a difference if it is implemented properly. We give them data so they believe this can make a difference if they invest time and effort.

Teachers need training skills and opportunities to practice them in a workshop. Ideally, it is important to train a minimal number of people from the school district so that "lone rangers" are not the only ones conducting prevention programs. Training, selection, and ongoing support are critical components in dealing with the implementation fidelity problem.

The age of intervention is important. Many researchers believe that prevention should start as early as possible. In testing these programs, however, it is essential to start with an age group that can be followed within the confines of available funding and at a time when enough of them are beginning to engage in substance abuse or other behavior that can be evaluated and that results in reasonable and legitimate statistical comparisons. To start too early in a research study that may span 3, 4, or 5 years makes it impossible to do an evaluation. Therefore, work should be done with older populations. For many reasons, the middle or junior high school age group is important. It is a critical transition point and a critical risk period. For those reasons, this age group warrants our attention. It also is a time when the onset of drug use begins to rise more steeply. It is possible to demonstrate differences between treatment and control groups because the base drug use rates are sufficiently high in the seventh, eighth, and ninth grades.

Parent involvement is critically important. Although school-based intervention is the primary "workhorse," the centerpiece of most prevention efforts, the family must be involved. Although it is often difficult to involve busy parents or those with their own problems, we have to reach out. We need to develop more effective ways of reaching parents so that we have more comprehensive, multicomponent, multichanneled interventions. Only then can we have the kind of impact that we must have if we are going to prevent what is shaping up to be a major epidemic.

Work Group on Prevention Through the Community

Panel:

Mary Ann Pentz
University of Southern California

Biddy Bostic
National Prevention Network, West Virginia Division on Alcoholism and Drug Abuse

Lynn Evans
National Prevention Network, West Virginia Division on Alcoholism and Drug Abuse

Phil Salzman
Community Anti-Drug Coalitions of America

Moderator:

Susan L. David
National Institute on Drug Abuse

Susan David

Our panel members are Biddy Bostic and Lynn Evans from the National Prevention Network and the West Virginia Division on Alcoholism and Drug Abuse, and Phil Saltzman, who is from a community coalition in Boston. Dr. Mary Ann Pentz will respond to the panel and clarify some areas.

Biddy Bostic

I am the acting prevention coordinator for the West Virginia Division on Alcoholism and Drug Abuse, and for the past 10 years, I have been a volunteer coordinator for a grassroots, comprehensive community-based prevention program in South Charleston. I will talk about community issues, and Lynn will talk about the State aspects.

I concur with what has been said about the myth that you can "build it and they will come." They will not come. But if you let them build it themselves and help them build it, then it belongs to the community, and they will come. When members of the community have a vested interest in a program, it is theirs.

A program must be comprehensive in scope with a strong no-drug-use message. It must be both community-based and school-focused because that is where the kids are. A program must be multifaceted, and the methodologies have to link. A program must also support a social development strategy to give people opportunities, skills, and the recognition they need.

The one area I cannot emphasize enough is training, because with training, the community becomes its own expert. It is wonderful to hear about all of the research and all of the money that is being spent. But for a grassroots community that has little money, you train the folks to do the training, which makes it so much easier.

In Appalachia, sometimes it is not easy for outsiders to come in and do training. A strong community program must have one particular component—community mobilization. Community members need to know why they need to mobilize, and a needs assessment must be done so that they can figure out the problems.

I would also like to mention the importance of peer programs, parenting programs, and the DARE program, which is wonderful, especially when used in collaboration with other programs. I cannot speak highly enough for peer education. When you train a kid to go in and train, you are not only training that kid, you are training his or her children and their children's children. You begin to change norms, including individual, school, and community norms. Not only do you want input from youth, but also you want their empowerment.

A program should cover the lifespan, including preschools, primary schools, and secondary schools; the rest will follow. It also should be school-curriculum-based with outside resource programs—a collaborative effort. It has to be multicultural and multigenerational, with an evaluation that is easy to conduct. Volunteers want to work with the kids; they do not want to spend most of their time doing paperwork.

A program has to be interactive. Once community members are trained, let them adapt the program to their needs and let them be creative. It is their program, not yours. Researchers/trainers empower the community to empower itself because that is what changes the norms. Prevention is a forever-and-ever reality.

Lynn Evans

I am excited about Dr. Pentz's research, because her work bears out exactly what we have seen in West Virginia. Although there are many community programs throughout West Virginia, we have been working toward a comprehensive approach for about 12 years, long before "comprehensive program" was a buzzword. Our findings were exactly like those of Dr. Pentz, who did the research and put it down on paper for us. We have not had the money to do that up to this point.

We also found that although there are many programs out there, we have to work with communities to create a comprehensive prevention strategy; otherwise, it does not work. If we empower the communities, they are willing to do it themselves. We do not need to do it for them. They will do the programs, and they will do the prevention as long as we give them the guidelines.

We can use the research we have been given today to go back to the communities that need some concrete evidence that what we have been telling is them is now based in fact. We have been telling them, because we knew it from our gut, but they needed something concrete.

From a State perspective, I am pleased that there are some long-term studies that are now coming to fruition and that we can use them to look at what are we going to do in the next 6 years and how we are going to make it comprehensive and longitudinal.

Phil Salzman

My experience at the community level—20 years of public school work and 15 years of community-based prevention work—has taught me that we have to start with the data then translate the data into a framework that average people understand. When we talk about protective factors, we have to use the words that people who care about people use.

The data are the data, and they are framed in a methodology and in a language that is appropriate. It is critical that the program start from that base. Then we need to translate the data, so that as we invite people to participate in health and wellness promotion, they feel that we are meeting them on common ground and that they have the capacity to participate. They have a core set of assets and resources that we often call conventional wisdom—I like to call it the things my grandmother knew.

That does not mean they have to learn a new technology or that we are not reinventing the human dimension and inviting them to participate in a new human experience. Part of what we are doing is inviting them into something. We have to fund and pull together alienated institutions within our community.

We need to have those kinds of discussions with people whose frame of reference is a research base. When we talk about a need for community systems to interface and be multicomponent and collaborative, we have to acknowledge that we have abdicated a certain level of responsibility within our communities to people who get paid to provide that. We have professional people who are paid to care; we used to have neighbors who cared.

Part of what I am advocating is the funding of community-based research. We need to take a look at how multicomponent, intersecting experiences of participation for youth and adults and youth-adult partnerships can remind, redesign, and invent a sense of intentional social purposes. It is important that intentional social purposes get constructed into a belief/vision system that is community-based and that explains to a developing person what it means to be a normal member of that community.

That community may be defined as a neighborhood, public housing building, or other grouping. In my experience, the most powerful thing that people, particularly youth, respond to is that they want to be considered normal. If they are growing up in an environment where the conditions send a message to them that it is acceptable to take risks, to use and abuse substances, to become desensitized to violence within the home and the neighborhood, and if that is what normal is, there is a likelihood that they will participate in those activities.

We also have to acknowledge as communities that addiction and substance abuse exist, and their total elimination may not be a realistic goal. Many community coalitions think they have failed if they have not eliminated substance abuse

or chemical dependency, despite making progress against these problems.

On a public awareness level, we have to acknowledge what addiction is, what substance abuse intervention is, what substance abuse prevention is, and how we can craft a community with multiple opportunities to promote health and wellness at different stages of development. Sometimes, relapse prevention is primary prevention for the child of an addict.

Policy is important. I remember clearly a time when we used to throw all of our garbage out the car window because that was normal, it was not against the law, and it was public policy. We did not have an environmental movement when I was growing up. The combination of public policy, public information, social change, and awareness changed that behavior and created a new set of attitudes about the environment and the community we live in.

Much attention should be placed on where the change agent and the change dynamic begin. The approach must be multifaceted from the behavioral, public policy, and community development points of view. We need research into how those intersecting, layering initiatives intersect into the daily life and perception of ordinary people and how that creates a sense of change.

Mary Ann Pentz

I will start with the policy issue. I cannot say for sure, but in light of the results we have seen so far—some new papers are coming out in January 1997—communities can get faster, better, more supportive policy change if they implement other pieces of programs first, with those programs in a community focused on building up an antiuse norm. That is, if you do it programmatically first, and you get children and their parents to be aware of that antiuse norm in a supportive way, they are much more likely to support policies and policy changes in schools and communities. This is in preference to the other way, which is more punitive, in which a policy is enacted because we have such a bad drug use problem, which causes problems and requires enforcement.

I want to deal with barriers first. One barrier is present when a coalition starts out as a separate entity in a community. One of the best ways to get everybody involved in singing the same message is to get the schools to support your effort.

I will give you a "bad case" example of a small city in southern California when I first moved there. I was asked by a prominent parents' group to monitor what they were doing. They were aggressive, and they did not like the school principal. They started their own Parents Who Care group and were not going to work with the school. It fell flat on its face, and when it got bad press, they could not get the support of the school.

When community leaders are involved in any kind of community organization or coalition, they are usually people who volunteer for a variety of things. They are good people, and we have to make sure that we do not burn them out. One of the ways we have found to prevent burnout is to ask people to make a commitment for no longer than $2^1/_2$ years and to build into the last half-year another person they nominate to take their place. If they choose or really push to stay on, that is fine, but they need to see a limit to their commitment in a positive way and build in somebody else to take their place. Also, you have to expect that coalitions evolve over time.

In Kansas City the coalition effort was the Kansas City Drug Abuse Task Force, a political entity that involved the district attorney for the whole midwestern part of the United States, the mayor of Kansas City, and several other people. They had a definite timeline—for political reasons—to finish their objectives at the community level by 1991, which was also the end of our grant period. When they determined they had completed their objectives, they disbanded the group.

It is okay for that to happen, but another possible model is for people to meet after $2^1/_2$ years and acknowledge their efforts to design objectives that were achievable within 6 months to 3 years and that would produce demonstrable effects. Now that the end of this period has arrived, what do we want to do with this? More likely, the healthier coalitions will start to change.

In Indianapolis the Community Action Council decided to merge with another group, the Hoosier Alliance, which was sponsored by the

Governor's office and other drug prevention entities. They have now taken on the mantle of not only drug abuse prevention but also some violence prevention initiatives. Evolving over time is not a bad thing.

I would also like to talk about the role of the researcher. I do not think communities use good researchers in the best way they could. A National Institute on Alcohol Abuse and Alcoholism monograph addresses this topic if you are interested. I was trained as a clinical and school psychologist, but I was lucky enough in graduate school to have one professor who taught an invaluable yearlong sequence in organizational consultation. It was a University of Texas model, and I learned that a good consultant is one who listens to the audience. When they tell you what they need, you reframe that. Even if you knew what you wanted to offer them, you must have a meeting point with what they tell you they need. Then you say, this is what I hear you saying, and this is the way I think I can help you meet your needs. Part of the role of a researcher should be that of a community consultant, not a paid consultant, but a consultant in terms of reinterpreting what a community says it needs in terms of what a researcher says.

The second role of a researcher should be that of an information broker, which is particularly important if you want to change community policy. It takes a long time, up to 3 years we found, to change policy, and often what will sway the powers that be is how much good information you can bring to the table from research about etiology and prevention and costs. A researcher can help a community coalition do that.

The third researcher role is that of an adviser when needed. For example, if you have five possible school prevention programs and they all look fairly similar to your community coalition, you can consult a researcher to determine the best content to govern decisions about which one to use or which pieces of several to use.

The fourth role, the one typically associated with research, is that of evaluator. But a researcher does not have to be only an evaluator; there are multiple other roles a researcher can play if that person has been trained in drug prevention.

Work Group on Prevention Through the Family

Panel:

Thomas J. Dishion
Oregon Social Learning Center, Inc.

Kathryn M. Akerlund
National Prevention Network,
Colorado Alcohol and Drug Abuse Division

Victoria M. Duran
The National Parent Teacher Association

Moderator:

Rebecca S. Ashery
National Institute on Drug Abuse

Rebecca Ashery

Our panel members are Victoria Duran from the National Parent Teacher Association (PTA) in Chicago, Kathy Akerlund from the NPN and the Colorado Alcohol and Drug Division, and Dr. Thomas Dishion from the Oregon Social Learning Center.

Ms. Akerlund and Ms. Duran will comment on Dr. Dishion's presentation regarding family prevention interventions. They will be looking at ways of knowledge transfer and considering such questions as, How can you take what we have learned from science and implement it in your programs? What are the barriers? What are the cost issues? After their comments, Dr. Dishion will clarify any issues they have brought up.

Victoria Duran

I am from the National PTA, which is the parent organization to PTAs in local school districts. There are almost 7 million members nationwide. I cannot claim to have direct contact with all of them, but we do work directly with our State congresses, which provide information and resources to our local units.

I was heartened to continually hear throughout all of the presentations, and certainly in Dr. Dishion's, the vote of confidence and the encouragement that parents definitely need to be involved. That has been the mission of the PTA for 100 years. This is our 100th anniversary

year—we were founded in Washington, DC, and our membership grew to an all-time high in the 1970s. Membership has been declining since.

As many of you know if you are working in the community, parent involvement is a struggle. The demographics are changing, the family structure is changing, and some of the barriers to parents' involvement at community centers and at schools are becoming greater. At the national level, we try to create model programs and initiatives to encourage our local units to get involved in initiatives like those that have been discussed at this conference.

Parents need to be involved as partners, rather than being talked to or preached at. Parents need to be involved as equal partners in many of the different initiatives that happen at the community and school levels. We need to be aware of a parent's number one concern. National surveys of our membership show that substance abuse is parents' number one concern.

Kathryn Akerlund

We have been blaming parents for everything for a long time, and we have done little to help them. We have not done prevention at the universal level with parents, which points up one of the barriers: When, where, and how are we going to offer all of these programs to parents? I suggest that we start thinking about whether we do it in the workplace or when parents are at school. However we need to get them more involved, and we are going to have to take it to them rather than build it and expect them to come to us.

As panel participants, we were asked to think about whether the findings fit our perceptions of the nature of the problem. The after-school problem is not only substance abuse but also teen pregnancy. Most teens get pregnant after school between 4 p.m. and 6 p.m. If we can solve some of that after-school problem for parents, we can also solve a lot of the other problems that are related to substance abuse.

I think we can do more at the State level. For example, we can get all of the State agencies that are involved in prevention to focus on parenting programs. We need to be using all types of programs because one size does not fit all. For example, where family preservation might work with one family, another type of program will work with another family.

The barriers are incredible. Although there are some great programs out there, it may cost $300 to $400 to get parents involved. When parents must decide whether to spend that money on clothes for the kids or spend it on going to a class, they are going to choose clothes for the kids. We need to make things more workable for them.

Therefore, we need to get the rest of the community involved. One way is getting our "critter clubs"—the Elks, the Lions—involved. They are in all of our communities, and they are parents who want healthy communities. Often they are just looking for a good cause to get involved with. In Colorado one of the clubs came to us and said they had heard what we had been doing about fetal alcohol syndrome and that we had a 5-minute video. They wanted to put the video into every doctor's office in our county. They paid for the videos and got them into every doctor's office.

NIDA should take what you are doing and get it out all over the country. I think that is one of the funder's responsibilities, to pass on the results of grant research in lay language so people can use it.

Thomas Dishion

I want to talk about the barriers. I mentioned the need for a menu of services to offer parents. We have to get away from the one-program-only model. Even in a community where the one program seems to be the best fit for many parents, parents tend to respond better to a menu of services. We also need to get away from assumptions about how much we need to intervene.

For example, when working with parents in groups, we looked at those families that made enormous changes and when they made them. In a psychoeducational model, you would expect that the more skills the parents learn, the more change would accumulate and that the most dramatic change would happen at the last session. However, that was not the case. The parents who changed dramatically did so after only 3 of the 12 sessions and maintained that change. A sudden shift happened.

Perhaps we should look at a few more assumptions in terms of how much parents need. When we approach a single parent who is working full time and ask that person to be involved in a 16-week group for 2 hours a night, it is a miracle to me that he or she shows up. It is a huge commitment. If they do not need the full 16 weeks or if we are overteaching, then we are not doing them a service. I am starting to think that might be true.

If we organize groups around salient issues that are happening right then, parents come in. If it is child-centered—for example, on the school performance of kids—suddenly attendance goes up from 20 to 85 percent. Participation depends on how we present what we are doing. If we call it a parent training program, the numbers go down. If we describe it as a night focused on concerns about what kids are doing after school, the numbers go up. When the focus goes from the parent to the kids, all of a sudden parents start showing up.

There are many such issues that we need to think through. And it is not just the researchers who can do that best; it is kind of a partnership. It is what people have called service delivery research, which is critical at this point. The focus on parents is important. There is much work to be done on exactly how best to deliver those services.

DAY TWO: PLENARY SESSION

Introductory Remarks

Alan I. Leshner, Ph.D.
Director, National Institute on Drug Abuse

I have been thinking all morning about how to introduce Elaine Johnson to the prevention community. The truth is, you don't; you just say, "Elaine Johnson is going to be our speaker." Everybody knows her. But I do want to say a couple of things because I think it is important that they be said in this environment.

We have been talking for the last couple of days about the need to integrate research and practice in a bidirectional mode where research informs practice and practice informs research continuously. I can think of no one who embodies that better than Elaine Johnson. I am particularly happy to have Elaine open our second day because of her perspective as someone who has provided leadership in research, leadership in prevention service concept, and leadership in prevention service delivery.

I think most people know Elaine's long and distinguished career, but let me remind everybody that she comes from NIDA. Elaine Johnson is unquestionably one of the most important leaders in the drug abuse field in this country, having served in the Federal Government at the highest levels for 20 years. She has been the deputy director of NIDA and the director of the Center for Substance Abuse Prevention; and don't forget her heroic and important national leadership as the acting director of SAMHSA.

We work together a lot, and I like it on multiple levels. I like it personally, because everybody in the country likes Elaine Johnson. And it has been extremely instructive for me. I have learned a tremendous amount from Elaine, as all of us have, and I have learned a tremendous amount from our collaboration and cooperation.

It is truly a pleasure and an honor for me to introduce our speaker, Elaine Johnson.

The Community and Research: Working Together for Prevention

Elaine M. Johnson, Ph.D.
Director
Center for Substance Abuse Prevention[4]

I want to commend NIDA for holding this important conference. And, to demonstrate how important the Center for Substance Abuse Prevention believes this conference is, we are here in full force. There must be 30 members of the CSAP staff participating in this conference. We are going to gain a lot from it, and I am pleased that Alan Leshner and his staff have organized such an outstanding event.

My topic is bringing together science and the community and bridging the gap. Most recently we have seen a dramatic increase in the public's awareness of the problems caused by substance abuse and also in society's willingness to act to reduce these problems. Now, because of the media and the election, private citizens and public officials have become more willing to take on prevention and make it a personal and a national priority.

You heard from General McCaffrey, and I am sure he mentioned to you that prevention is the number one objective in the national drug control strategy. We now have a growing body of research that gives us important insights about the causes of drug problems as well as about effective strategies to prevent them.

Also, we have to keep in mind—as you have heard over time from Dr. Leshner and others—that we can measure our progress in numbers, because fewer Americans use illicit drugs than did so more than a decade ago. Looking at the area of smoking in the American population, we have seen a decrease, as well as for alcohol-related traffic accidents. The thing to keep in mind is that 78 percent of young people are not drug users. That says a lot for our field, whether we are prevention research scientists or prevention practitioners who are on the front line. We have made considerable progress.

This progress is encouraging, but at the same time we must be aware that drug use is not a problem that ends and that prevention is not a job that gets finished. I remember one of our Presidents who talked about "turning the corner," but we know now that to be a fallacy, because there is a need for sustained, vigorous prevention efforts. It comes home to us when we look at the latest National Household Survey that has shown a major increase in marijuana use among those between 12 and 17 years of age. So we have to bolster our determination to maintain strong prevention efforts over time, and we must make them more efficient and more cost-effective, especially in this era of fiscal constraint.

The knowledge resources of the scientific community also must be applied to prevention practice. At the same time, scientists must become more aware of the crucial knowledge base that practitioners have accumulated through years of experience, and researchers must be sensitive to the practical needs as well as the limitations of prevention practice. Therefore, I would like to share with you some examples of CSAP's efforts to bridge the gap between science and research.

CSAP currently supports three cross-site evaluations. There is a large community partnership program that started in 1990 that has progressed the furthest. The community coalitions evaluation and the high-risk youth grants evaluation

[4]Elaine Johnson is now retired from CSAP.

began in 1995. The high-risk youth grants included in the evaluation were funded in 1994 and 1995, so they are just entering their data collection phase. This evaluation is a time series, individual measurement design with participating and comparison groups of young people. The partnership program evaluation is a comparison group design measured at two points in time with individuals nested within communities. The community coalitions evaluation is a time series, community indicator design, with individuals hospitalized or arrested, but also nested within communities.

The grant programs that we have supported at CSAP have encouraged grantees to undertake model interventions at each site, depending on the needs and the capabilities of the grantees. Thus, the partnerships and the coalitions, as well as the high-risk youth programs, call for applicants to design their own prevention programs as long as each grant meets certain objectives stipulated in the grant announcements. The freedom of choice that went along with the programs provided the overall broader goal of empowering grantees, with the hope that successful efforts could be sustained beyond the period of CSAP's funding.

We wanted to make a difference in the community, whether it was systems change or individual and family change. The result has been different interventions within each grantee community. However, I want to point out that all communities have been recruited with the assumption that they will faithfully implement the same intervention at each site.

A community trial is run from a central vantage point that prescribes the nature of the intervention to be followed. So the mission of the community trial is to examine this common intervention in different community settings, and the fidelity to the common intervention is more important than any concern for community empowerment.

The community partnership evaluation has collected a broad variety of data, including cross-sectional surveys of adults and young people and case studies of 24 partnerships over a 5-year period. The evaluation is aimed at addressing two major questions: Do partnerships lead to a reduction of substance abuse in communities? How does such a reduction occur? The evaluation requires a combination of quantitative and qualitative data.

The data collection was completed last June, so now we have comparable sets of outcome data with two points in time for the 24 partnerships and their matched comparison communities. The surveys were large-scale efforts with about 300 adults and 100 youth who were surveyed in each of the 48 communities. Unfortunately, it was not possible to carry out the youth surveys in all of the 48 communities.

Remembering that data collection just ended in June, we must regard any preliminary results as just a peek at much more that is to come. Remember that the 24 partnerships were chosen randomly from the entire portfolio of grants, and we would not expect that every partnership would have succeeded. But preliminary results suggest that statistically significant lower levels of substance abuse were found for 8 of the 24 partnerships, compared with the comparison communities, after controlling for the possible confounding effects of individuals' demographic characteristics, such as age, gender, and race.

A key part of the continuing analysis will be to determine the conditions within these partnerships that might have produced such results, along with a similar analysis of the partnerships where such results were absent. We also want to look at the hindrances to change as well as the facilitators of change in those particular communities, which could have been from a number of different factors, including how the program was implemented, the type of program, or economic conditions. Therefore, in further analysis we will be able to speak to that point as well.

Among the important prevention activities instigated by the partnerships, developing and implementing local policies may be just as important as operating more traditional prevention activities, such as after-school programs, workplace programs, and alternative programs for young people. The evaluation will be exploring these and other potential explanations for partnership success or failure in months to come.

The community coalitions evaluation has a more complicated task than the community partnership evaluation. CSAP defines coalitions as clusters of single partnerships, and in turn, clusters of single organizations. From a prevention perspective, the coalitions are expected to be more far-reaching than the partnerships because coalitions are larger and contain partnerships within them. Coalitions cover a larger geographic area or target population and can include a wide range of prevention and prevention-related initiatives. One of CSAP's expectations is that successful coalitions will lead to a variety of desirable health-related outcomes and will not be limited to only reductions in substance abuse.

All of these complexities create a great challenge for the research team that must attempt to develop causal attributions under more layered conditions, especially when looking at a structure as complex as the coalitions. The evaluation design has just been completed, and the data collection is now under way. I know that some of you in the audience were instrumental in helping us put together the evaluation of the coalitions and the partnerships, and we certainly are appreciative, because it is difficult to develop an evaluation design for such a complex, structured prevention initiative. The data will be a combination of archival data available from national sources, State sources, and the coalitions themselves and will include hospital discharge data, uniform crime reports, and data from the fatal accident reporting system.

Note that this data collection plan does not include the conduct of surveys, such as surveys of young people in schools. Many researchers in the audience are aware that such surveys have become increasingly difficult to implement because of restrictions by local school districts and are further jeopardized by proposed Federal legislation. Such restrictions were the reason that CSAP could not cover all of the intended communities in the partnership evaluation.

At the same time, a benefit of the coalition evaluation plan is that it can cover a large number of coalitions. The plan analysis also will raise again the issue of optimal statistical models, because the data will have individuals who will be discharged from hospitals or arrested under varying law enforcement conditions nested within communities.

Whatever the model of choice, the analysis will likely have similar characteristics. I will walk you through a theoretical framework that we have used to evaluate Harvest Youth Programs, which include programs that were funded in 1994 and in 1995. From this large pool, we have selected 48 grantees, each with an experimental or quasi-experimental design. Data [collection] for this evaluation began last spring. The evaluation design is sensitive to the importance of program characteristics for providing a context and making comparisons between program participants and between comparison subjects. Also, in terms of subject characteristics, the fundamental questions posed in this quasi-experimental design involve comparisons between the study subjects and the comparison group. The framework also includes data on exposure of youth in the treatment group to specific strategies and services, and the analysis involves comparison of change and attainment of short-term goals.

In terms of followup, the design includes measurements of the level of treatment exposure after the prevention interventions have taken place. In terms of risk and resiliency outcomes, the variables represent the more long-term impact of the program.

The high-risk youth evaluation focus is on both intermediate outcomes and outcomes related to lower prevalence [of drug use] among the groups. Data will be collected from a variety of sources, including a youth survey. Our basic design elements are a multisite, quasi-experimental study with comparison groups and an integrated process and outcome approach. This design, like the partnership and coalition evaluation, recognizes the important role of qualitative findings and intermediate outcome findings in a successful interpretation of ultimate program outcomes.

The evaluation encompasses all 48 local programs with 24 programs from the 1994 cohort and 24 programs from 1995. The design includes the use of a standardized instrument and standardized data collection through annual site visits to the participating grantees. It also includes longitudinal surveys of 6,000 participating and

4,000 comparison youth over four points in time: baseline at program entry, posttest at program exit, 6 months after program exit, and 18 months after program exit.

The core analysis of outcomes will focus on an explication of treatment effects on substance abuse attitudes and drug use, and the analysis will be conducted to assess immediate effects detected through analysis of change in substance abuse measures between baseline and program exit. The analysis will be expanded to also assess long-term effects detected through an analysis of change in substance abuse measures, such as the change between baseline and 6-month and 18-month followup, that can be attributed to program intervention. This large-scale evaluation study for our high-risk youth program is the largest that we have ever done.

I have talked about our community partnership and coalition programs, and I would now like to focus on our most recent program, our prevention intervention studies. This new study program is driven by the need to support diverse studies in a variety of communities, both urban and rural. This program is neither a demonstration program nor a community trial program. Rather, it is an applied prevention study intended to generate new knowledge about how to change the developmental trajectory of children at risk of substance abuse. It is a cooperative, multisite approach that is being used to assess the effectiveness of interventions to change identified predictor variables and to synthesize the results derived from this effort.

To ensure success, the initiative also calls for a national research coordinating center that will have responsibility to provide overall coordination and data management of the multisite research effort, conduct secondary analysis on data relating to the common predictor variables, and integrate the results across developmental stages. Instead of being a comprehensive program, the initiative focuses on the ability to develop and evaluate culturally and developmentally age-appropriate interventions targeting the development of social competence, self-regulation and control, school bonding, and parental caregiver investment over one of the four identified developmental stages.

We are beginning [to study the] very young with this program. High-risk youth programs historically have focused on adolescents, and now we are looking at preadolescents, starting with 3 to 5 years, then 6 to 8 years, 9 to 11 years, and 12 to 14 years. In examining the four predictor variables listed above throughout four developmental stages, the study attempts to address the following question: At what developmental stage does enhancement of each of the predictor variables prove most effective in preventing or reducing negative behaviors that are predictive of substance abuse?

This, again, is an experimental design, and it is required to assess the effectiveness of the interventions targeted at the four predictor variables for each one of the developmental stages. Each of the sites will target one age group. Both process and evaluation data will be collected from target and comparison groups over 2 years. The analysis of the data will be conducted in the last 6 months of the grant period. Depending on availability of funds, we plan a long-term followup study.

Finally, I wanted to spend just a few moments on the two community trial projects that we have been supporting with the National Institute on Alcohol Abuse and Alcoholism (NIAAA). It certainly is another exciting collaboration between scientists and prevention practitioners in communities represented by these two projects.

The first project, which has just been completed and is in its fifth year, was designed to apply the best science-based strategies available to reducing alcohol-related injuries and fatalities. The four strategies with the strongest research evidence of effectiveness in reducing injuries and fatalities were identified: responsible beverage service practices, vigorous efforts to prevent impaired driving through well-publicized law enforcement, a variety of strategies to reduce sales of alcohol to minors, and the use of zoning ordinances to reduce the density of alcohol outlets. Scientists worked collaboratively with leaders in each of the three communities to implement these strategies. Two of the communities were in California, and one was in South Carolina. The communities were culturally diverse and had about 100,000 residents each. The project was

rigorously evaluated, including extensive data collection in these subject communities as well as the matched comparison communities. The grant resources that were expended under the community implementation part of the program were very modest. These were expensive projects, and both NIAAA and CSAP had limited funds for implementation. This effort has paid off, though, in statistically significant declines in alcohol-related injuries and deaths in those communities.

Another community trial project is the Communities Mobilizing for Change on Alcohol (CMCA), which involved seven communities in Minnesota and Wisconsin. Community organizers worked with citizens of all ages and from all sectors of the community to develop strategies for healthy and safe communities in which underage drinking would be less likely to occur. Rather than educating youth on how to resist an environment that encourages them to drink, communities actually mobilized for change on alcohol and sought to change those environments that encouraged underage drinking and contributed to overall alcohol-related health and social problems.

As you know, altering the environment involves change in many practices and policies regarding alcohol. By changing the environment that makes alcohol so readily accessible and glamorous, a community can reduce the degree to which young people are encouraged and allowed to drink alcohol. Ultimately, then, by addressing consumption of alcohol among youth, communities not only reduce car crashes, violence, and injuries and other health problems but also discover and develop capacities to address a wide range of issues.

A major effort within CSAP to bridge the gap between science and the community is contained in our National Center for the Advancement of Prevention (NCAP). While all of the efforts before us are important, this one is important because it is an ongoing effort from which I expect the entire field to benefit. About 3 years ago, CSAP established the center with the following goals: to conceptualize the prevention field in ways that will lead to appropriate application of scientific knowledge, synthesize scientific knowledge so that it can provide clear guidance to the prevention field, and customize the information so that it can be easily used by a variety of audiences in the States and communities. To accomplish these goals, NCAP has established a process for involving both the scientific community and practitioners.

NCAP products are selected on the basis of two equally important criteria. First, there must be a good, credible body of scientific knowledge, as identified by a panel of senior prevention scientists in the field and from NIAAA and NIDA. Second, the potential product must be useful to the field, as judged by a panel of field advisers drawn from the States and community organizations. Products are then developed with careful attention to their scientific accuracy. They undergo the same kind of rigorous peer review that would be carried out in a research journal. The products are reviewed also by the panel of field advisers to ensure that they are clear and applicable. They are adapted into a variety of formats to make them most useful to different audiences.

The important goal is to get scientific knowledge expressed clearly and in ways that can be most easily adopted into practice. These products are designed to help policymakers and practitioners make sound decisions about which substance abuse problems to address, which strategies to select, and how to implement them most effectively.

NCAP has also hosted lectures and workshops by experts, including scientists, policymakers, and practitioners on a variety of critical prevention topics. These lectures have been recorded so that a broader audience can have access to them, and NCAP is currently developing a series of research alerts to bring recent research to the attention of practitioners by disseminating brief, easy-to-read summaries of key findings. In these and other ways, CSAP hopes to facilitate better communication between researchers and practitioners and better use of prevention resources through the application of important scientific findings to prevention practice.

I think we have made a tremendous investment in generating new knowledge about substance abuse and ways of preventing it. All of this money and effort and commitment has yielded a great

harvest for us. We now have a better understanding of substance abuse, its causes, and its cost. We have at our disposal an array of policy strategies that can have a powerful impact on substance abuse and [related] problems. We also know much more about a variety of prevention programs, how well they work, and what makes them work best.

As I pointed out earlier, we still have a way to go—NIDA in terms of its scientific work and CSAP in generating knowledge. But when you think about our field 10 or 15 years ago, we have come a long, long way in terms of developing a knowledge base. The time has come to make sure that this valuable and hard-won knowledge—and, believe me, it has been hard-won on a number of fronts—is applied in both Federal and State legislative policies and funding choices and in the prevention efforts of communities across the Nation.

I have heard Alan Leshner say many times that it would be great if our policies were based on scientific knowledge and not ideology. Maybe at some point we can get closer to that ideal. What I have attempted to do this morning is show how CSAP is trying to make this work, bridging the gap between our practice and research. It is a challenging test and one that we all need to continue to work on together.

Panel Presentations: Is Your Community Ready for Prevention?

Moderator's Remarks

Gloria M. Rodriquez, Ph.D.
Project Manager
State Needs Assessment Project
New Jersey Department of Health

I want to thank NIDA for the opportunity to participate in this conference and to share with you some of New Jersey's experiences in keeping with the theme of the conference, which is putting research to work for the community.

Today we have a wonderful panel composed of State and local community leaders who have experiences in linking research and practice with service delivery issues and who are ready to share their experiences.

Yesterday we heard over and over again that there are certain questions that the community needs to focus on when selecting a particular model program. These questions include, Does the program address the needs and problems identified by a needs assessment? Is the program ready for distribution? Has it demonstrated efficacy and effectiveness? What aspects of the program would have to be adapted to fit the needs of this particular community, such as cultural issues?

Practitioners want to know how much the program costs. How long must it be administered to achieve positive effects? Will training, technical assistance, and protocols be available? Are manuals developed that will assist in the implementation process?

Some of those questions were answered yesterday, and some of them will be answered today by our panel. First, I will talk about New Jersey's approach to conducting a statewide needs assessment study. Next, Mr. William Crimi, executive director of the Franklin County Prevention Institute in Ohio, will share with you that county's perspective in undertaking a needs assessment project to plan prevention services. Mr. Harry Montoya of Hands Across Cultures in New Mexico will talk about cross-cultural issues specific to Hispanic-Latino populations and how these must be integrated into a needs assessment process and also into program planning and program implementation. Finally, Mr. Thomas Connelly, an educator and implementer of the Life Skills Training program in New York, will talk about implementing that program in the school system.

Putting research to work for the community is the theme for this conference and also the philosophical approach adopted by the New Jersey Prevention Needs Assessment Project. New Jersey is undergoing a major initiative called Prevention Unification, which is designed to coordinate the needs assessment and planning process on a county-by-county basis so they all work in unison. Counties were asked by the State to submit a single, countywide prevention plan based on a risk and protective factor model, including a comprehensive needs assessment and measurable outcomes.

Some of you who are representing State agencies or who are local county and community planners may already be doing this. However, this is a major shift in our State. Formerly, New Jersey did prevention planning on the basis of an intuitive, gut feeling of what types of programs were needed and why. Now we are shifting that focus. We are saying that we are going to conduct science-based needs assessment projects and studies—actually a family of

studies—to determine where the problem is, who is having the problem, and the extent of the problem, and to guide our planning process.

As part of the unification process, each county is already forming working groups with representatives from the entire community, and we have heard how important that task is. The working groups include the schools, community agencies, businesses, municipal and county governments, faith communities, and others. In that way, many community institutions become knowledgeable about the community's prevention needs and how best to meet them as they are forming the planning process.

In the midst of this, CSAP announced a major initiative, the CSAP Prevention Needs Assessment Contracts. We applied and were fortunate enough to get one. It is one of the best Federal initiatives to help develop the State's infrastructure, and for this we thank CSAP and CSAT. These contracts have enabled New Jersey to produce data-driven planning and resource allocation processes that otherwise would not have been possible.

I will briefly describe the different types of studies we have been undertaking for the past 3 years, as well as our three overriding concerns when we decided to undertake these studies:

- One concern was [assessment of] the gaps in services. We looked at what data we already had and at what data were missing, and then we decided to design a study to get that data.
- Our second concern was to make sure that the data being derived from these studies and other kinds of activities being undertaken at the State level would also fill the needs of the local, county, and municipal planners. We asked planners what kind of data they needed and in what format and how we could help them develop their needs assessment studies.
- Our final concern was that we needed to come up with a formula for the reallocation of prevention resources based on these data. That was pivotal to the whole process.

With this in mind, we decided to look at seventh and eighth graders because we had no data on this population. We have protocols for all of the surveys I am going to talk about, and we are in the process of finalizing the report. If you are interested in the particulars of the design and some of the results, you can contact me, and I will send them to you.

The mature citizen survey is a unique undertaking, and we are very proud of it. We decided to look at individuals 65 and older to determine the prevention needs in this overlooked population. We seem to concentrate on kids; however, our seniors also have prevention needs that should be addressed.

We also decided to undertake a community leader survey, which I will describe later because I want to give you more particulars; this survey looks at community readiness from a different perspective.

One of the cornerstones of a needs assessment project is a social indicator study, which comprises three separate activities that we have been undertaking. The social indicator study is a study of archival data that we have summarized.

You often hear that prevention programming must match the nature of the problem in the community. However, few communities have the wherewithal, especially the financial means, to conduct a science-based needs assessment study that looks at all of the different, complex factors. Therefore, when we asked county coordinators what they would like, they said, "We want you to produce something for us that we can understand. Don't give us tables because it is difficult for us to interpret those data."

Keeping that in mind, this is exactly what we went about doing. We used a factor analysis procedure and developed composite risk indices to summarize all of the municipal-level data. We compiled 50 municipal profiles that looked at risk and protective factors in the four domains and in the subdomains. We gathered data from the surveys, from the census, and from other archival kinds of data and came up with risk indices and risk scores for each city and each county. In this way, local planners could easily see where their city stood with respect to all the different risk domains as opposed to the State or averages.

Some of our counties look a little bit different from some of the cities within counties because some of those cities within counties drive the

data. For example, Essex County may not look as bad on the risk indices, but if you look at the city of Newark within Essex County, you will see that it is not Essex Fells in Essex County that is having the major problems but Newark and East Orange in Essex County that are having most of the problems. This approach teases out the data to the lowest possible level to allow county and municipal planners to zero in and target prevention programming and different kinds of plans and activities where they are needed.

Our chartbook is close to 100 pages, and the raw data are included at the end as an appendix. We are planning to continuously update the information as the data change. This is an ongoing process, not a one-shot deal, and we have made a commitment to the county and local planners to update this chartbook as new data become available so they will always have up-to-date data on which they can base their planning. This is especially important in conducting outcome measures for the prevention activities. Planners can look at current baseline measures in all of these risk domains and compare them with the results after the prevention programming is completed.

State employees should remember that they are collecting data not only for their needs but also so that they can be used at the local and county levels. County, municipal, and other planners should make sure that they "reach out and touch" the State people and say, "No, what you are producing is not making any sense for us. We need this interpreted for us."

Our community leader survey is a fascinating piece. It looks at community cohesion, which is a piece of the community readiness approach. Without going into the theoretical basis, I want to share with you whom we surveyed. We looked at major groups—education, law enforcement, public health, and local government. We also looked at the faith community and business. Within each one of those, we looked at two specific leaders.

In the education area, we surveyed superintendents of schools and presidents of the boards of education. In law enforcement, we looked at police chiefs and prosecutors. In public health, we looked at hospital directors and mental health directors. In local government, we looked at mayors and public health officers. In the faith community, we looked at religious leaders who were recognized in the community as participating in prevention activities and then at interfaith organizational leaders of major interfaith coalitions within those counties. We also looked at business, because we felt that business was an integral part of this whole prevention activity. We looked at the largest employers within that county or municipality and at chairs of the chambers of commerce.

We asked these individuals about several major areas. We wanted to know the priority of substance abuse problems in their community, the target population that they perceived needed prevention programs, the efficacy of prevention approaches that had been utilized, and the accessibility of substances within their counties and municipalities. Then we wanted them to judge the importance of these factors in the development of prevention activities.

Armed with objective data from the social indicator study from our middle school survey, we are now able to compare the perception of what the problem is versus our objective, data-driven analysis of what the problem is within municipalities.

Eighty-five municipalities received a mail survey, which resulted in a 51-percent response rate, which is pretty good for a mail survey. We did cohesion scores to assess what these community leaders were thinking about and wanted to do in their community, irrespective of what we know from the science base—which is what kinds of programs fit best for what kinds of problems. If you are interested in knowing about this, I will send you the protocol, and we can share our final report with you.

We feel we have a very rational approach. However, policy and program implementation does not necessarily follow a rational approach, which is why we decided to look at cohesion with community leaders to try to prevent the disconnect between policy and research and program planning and research. We also wanted community coalitions and partnerships to be aware of what they were facing if they tried to implement

programming that was not in concert with what community leaders felt their community needed.

Panel Presentations

William F. Crimi
Executive Director
Franklin County Prevention Institute

I want to acknowledge three organizations before I begin. One of them is the Center for Substance Abuse Prevention, which took the challenge and the risk of directly funding communities to create and build comprehensive community-based systems of prevention. Join Together and the Community Anti-Drug Coalitions of America provided communities with realistic and practical technical assistance to get the job done. So on behalf of many, many communities, thank you.

I like the saying that unless we utilize the lessons learned from the past we are destined to keep repeating them. Thirty years into the challenge of addressing substance abuse problems, it sometimes becomes frustrating that we keep doing the "same old, same old."

I represent Franklin County, which includes Columbus, OH, and we are fortunate to have received a CSAP Community Partnership Grant. I want to talk about the process we went through in integrating prevention research into a strategic planning process.

Columbus already had a system of prevention. The public entity that funds substance abuse and mental health programs funded 30 prevention programs. When we did our needs assessment, we found 40 additional ones. Therefore, we found that a lot of activities were going on, but people were going off in very different directions.

Our goal as a community partnership was to help all the arrows point in the same direction to achieve a larger goal. First, we conducted a needs assessment to get a snapshot of what the landscape looked like regarding alcohol and other drug problems. We also wanted to measure the community's readiness to coalesce around the issue of substance abuse prevention. We also wanted look at things like funding streams, how dollars are allocated, and who is funding prevention services, and to review the current providing systems.

We then began a process of researching effective alcohol, tobacco, and other drug prevention model activities and came up with the ones that you are all familiar with, most of which came out of some of the CSAP literature and other popular literature: skills-building, community mobilization, alternative activities, advocacy, mentoring, and role-modeling. What we learned, not surprisingly, is that the community did not have a real understanding of prevention and how prevention works.

So the first order of business was to begin a comprehensive community awareness campaign to give a clear, concise prevention message to the community. That consisted of billboards and PSAs on television and radio, a poster campaign, and various appearances on TV shows and press releases through the media. We wanted to at least begin at a level where the community could begin to conceptualize what prevention was. In our community partnership, we initiated the "learning laboratory," where partners committed to meet on a regular basis for a year to begin the transition from activities to thinking more strategically about prevention and designing a comprehensive prevention system.

We wanted to avoid getting involved in the activities trap, that is, doing, doing, doing, and not thinking of how multiple activities fit into the bigger picture.

It was a wonderful experience, and some of the data that we received from those who went through that learning laboratory were beneficial because they indicated how the participants saw the community partnership and the organizations that they represented. Their bottom-line recommendation was that we needed to develop a strategy that would be more comprehensive than a series of individual programs, but these programs would still be part of the overall strategy.

So we went through a process of getting input from the entire community on what kinds of things should be included in a comprehensive substance abuse strategy. Within the county, we conducted over 30 focus groups with all sorts of different configurations. The result was the draft version of our strategic plan, which we called "Promises of a New Day." Our next challenge was to begin to develop a framework for

directing and evaluating the progress of that strategy. Our coalition, like many of yours, is made up of over 60 organizations, so the challenge was to make the tent broad enough so that everyone's agenda and mission could fit under it. Our broad-based mission was to prevent the harm from substance abuse.

We decided to look at three goals according to populations of infants and preschoolers, children, adolescents, and adults, because in our county we tend to keep data on those groups. Much of the data came from Healthy People 2000. We wanted to look at health status objectives or those desired changes in individual health and well-being that could be stated in measurable terms; to look at risk-reduction objectives or those desired changes in individual behavior, perceptions, and beliefs stated in measurable terms; and finally, the strategy objectives, those programs or policies and funding streams, which are also stated in measurable terms. This paradigm was created by the health department, police department, our local board that funds alcohol and other drug and mental health services, drug-free schools, and the health coalition in central Ohio.

We thought that drug education had to be an important and viable part of the strategy—by that we meant multisession, culturally meaningful, and age-appropriate drug education from preschool through college. This included neighborhood-based support, specifically neighborhood-based community programs that meet the needs of kids between 2:30 and 6:30 p.m., a period that our data tell us is when kids are most vulnerable.

We are in the process of doing a policy panel on youth violence, and we are holding town meetings throughout the county. It is amazing to me that parents keep coming up and testifying that the times that they are most concerned about are those hours when they are at work and kids are out of school, between 2:30 and 6:30 p.m. We are happy to see that we are in sync with the community on that.

Community policing was an important part of that strategy; enforcement and the community should come together as problemsolvers to address community challenges.

We talked about workplace strategies and community involvement, with both adults and youth joining together to address neighborhood-specific substance abuse prevention efforts and ongoing public awareness campaigns. We also included two more issues that are not usually mentioned in discussions of comprehensive prevention systems: One is access to treatment, and the second is jail-based treatment. As you all know, we are not going to build our way out of this problem with jails and prisons. We have been advocating for local jail-based substance abuse prevention treatment and general health education for all those who are incarcerated.

The challenge is integrating these strategies into our framework, and none of this is going to make any difference at all unless we believe that those policymakers who have the power buy into this and sign at the bottom line. So far we have a commitment from all of those agency heads who agreed to review their funding streams and their community plans so that they fit into this paradigm. We also established some level of responsibility and accountability by having the partnership sign a memorandum of understanding that goes beyond 3 years (the political life of a policymaker); we are trying to get people to sign off on this for the long term.

The first part is to begin another communitywide campaign to educate the community about the strategic plan. In this first year, we will speak to every city council and other units of government throughout the county about the strategy. We will also talk to school boards—we have 17 districts in Franklin County—and then community groups, community organizations, and area commissions. We have partners who have signed on to become part of a speaker's bureau to help educate the community about this strategy.

Next is the implementation stage. There will be an ongoing evaluation after the CSAP grant ends that will be revised as necessary as we go along. We also think that it is important that there be a commitment from the key prevention system heads to work within the framework, especially in developing new kinds of funding streams. Categorical funding is not the way communities experience community problems, so we

are trying to get systems to think more like the way communities experience problems, which is more conjointly with commingling of funds.

What did we learn in 5 years of becoming a CSAP partnership? Just because the funding was for 5 years, does not mean that in 5 years there will be a substantial reduction in substance abuse. We found that it took 2 years just to get people on board and to understand what we were trying to do. Something magical did happen in the third year—and I know "magical" is not one of those words that evaluators use. But the "lights came on" at different times. Suddenly, people were "getting" what it means to coalesce around the issue, and that was exciting. It is a challenge to get people and systems to think strategically because our human service, knee-jerk reaction is to think, "How?" It is ingrained in us that if there is a problem, we are going to have a program instead of thinking more in terms of the larger picture.

We also learned something that was reiterated at this conference—that you need to say the same thing in different ways over and over again. It is what I call the "Coca-Cola Syndrome," that is, marketing the same product in many different forms and ways.

We also learned that politics can inhibit the process. And I do not mean just capital "P" politics, but I mean some of that small "p" politics, too, where agency heads and institutional egos get in the way of trying to achieve a goal.

Sometimes systems have a difficult time seeing the bigger picture and seeing the interconnectedness of their efforts. Early in the process, we thought we needed to help the community make sense of this issue so we wanted to address an issue that was winnable. We thought that underage access to alcohol was one of those issues that could be winnable for our community. We started off talking about underage access to alcohol. From there, we held our first policy panel. Some legislation is pending, and we are excited about many things that have happened as a result of the policy panel.

But in the beginning it was frustrating for people to see how their organizations or agencies interconnected around the issue of underage access to alcohol. Initially, the partnership said, "We need more people at the table to do that." Although that is true, it can also be a stonewalling strategy. At some point, we need to believe that the right people are at the table.

Community partnerships and coalitions sometimes have difficulty understanding the role they can play in creating a power base. But I believe there is only one reason to form a coalition, and that is to form a power base. If you are not looking at yourself as a power base, then you become program "doers," not overall planners. So getting our coalition members to see themselves as a power base that can effect social change was a challenge and is an ongoing process.

What has happened as a result of all this? We have looked at three things in the past 5 years. We have about 10 outcomes at this point, but I will discuss only 3: underage access to alcohol, underage access to tobacco, and the commingling of funding streams around prevention.

The first result was a significant decrease in outlets that sell tobacco to minors. In Ohio, as in other States, it is illegal for stores to sell tobacco and alcohol to minors, but it is not illegal for kids to buy them. In conjunction with the Columbus Health Department and the Franklin County Board of Health, we did a compliance survey and found a significant increase in the number of alcohol outlets that check identification to control underage access to alcohol. This is a 3-year study. In the first year, only 34 percent of the stores that we surveyed checked identification. The year after this coalition mobilized and jumped on the issue, the percentage nearly doubled to 61 percent. More and more stores in Franklin County are getting the message that they have to check the identification of young people. We thought this was a significant outcome.

In terms of tobacco access, because it is not illegal for kids to attempt to buy cigarettes, we sent kids into stores to purchase a pack of cigarettes. These kids looked like kids—[obviously] they were not 18. We found that 78 percent of the stores sold them cigarettes without asking anything. Then we did an intervention immediately afterward, and in 90 days went back. After the intervention, the percentage of stores that sold cigarettes to the teenagers went down to about 24 percent. We were really happy with that.

The other significant thing that happened—and this did take 5 years—was the creation of a new funding stream among the United Way, a local Columbus foundation, and our local Alcohol and Drug Addiction Mental Health Board, which put together some money to look at substance abuse prevention and violence prevention as a combined issue. This was the first time in our county's history that those three agencies came together to collaborate around a demonstration project. An exciting evaluation component will be part of all of this. We are going to do a trilevel evaluation:

- The first level will look at the collaboration among the collaborating agencies and ask questions such as, "Are there any policy outcomes that will result from this collaboration?"
- The second level will look at the grantees. We want to break away from a tradition that says you give grantees money and then you see them at the final report. There are 10 community-based grantees that meet together every month in a learning laboratory session for $2^1/_2$ hours. The first hour is devoted to helping them design their own evaluations, and the second hour consists of networking and peer-to-peer technical assistance. Our premise is that by giving more technical assistance, we will see a better outcome at the program level. This has been an exciting process, especially because the grantees were resistant to it in the beginning. On their weekly evaluation sheets, now they are saying things like, "We need to do this more often," and "We need to be able to get away for 2 days and do a big retreat."
- Finally, the third level of the evaluation will look at the impact on the communities from those 10 projects.

We believe that all of these strategies and communities working together help to operationalize what our logo represents, which is that we become a community that truly addresses substance abuse together.

Harry Montoya
President and CEO
Hands Across Cultures

This NIDA conference has highlighted a willingness to look at doing things differently and merging some of what is happening in the scientific community with what is happening in communities around the country. This is a significant step for community-minded individuals.

Fred García, the former deputy at the White House's Office of National Drug Control Policy, and CSAP have done a good job in keeping prevention at the forefront. I would also like to acknowledge the Community Anti-Drug Coalitions of America, on whose board I serve, its diverse group of individuals, and Jim Copple, who has put together a remarkable program and staff.

I am going to take a step back in terms of everything that has been said over this past day and a half and move from what has been a cerebral discussion by bringing a little heart into the discussion. In 1977 Seymour Sarason made the simple statement that we need to take a look at prevention, because it is much more effective than our capacity to repair. Short-sightedness bordering on blindness to build up the clinical endeavor at the expense of prevention is not what we should be looking at. We should be looking at preventing drug use in our communities.

We need to frame this discussion of prevention in terms of what is happening in our country today and take into account the diversity that exists within our communities and within our country. Between 1980 and 1990, the fastest growing ethnic groups in this country were Hispanics, who grew by 53 percent, and Asian and Pacific Islanders, who grew by about 108 percent. The United States now is the fifth largest country in the world in which Spanish is spoken, and it is estimated that by the year 2000, more than half of California's population will be Spanish-speaking. We must take conscious action in terms of efforts to enact English-only alternatives that are being presented in certain States and communities.

We all approach our work from within a particular framework, with a particular world view; when we bring that into our work, we are influencing the culture in which we are working. When we look at culture, we explain it in a "folkloric" way or in a way that is "home" or "natural." In a culture, we do not have to explain anything to anyone about our language, our food, our dress, or our dance. All different types of culture exist. For example, we have Wall Street culture and street culture, and there is a huge difference between those two. We need to be aware that culture is what we acquire and what becomes natural to each of us. It is not transmitted biologically, but environmentally. Culture plays a profound role in who we are; we are programmed in our culture. Consequently, prejudices are learned, and "cultural dissonance" then becomes a clear part of what we need to work on in solving problems within our communities.

Different ethnic groups have contributed to the Hispano-Latino culture, including African Americans. The rituals of passage, spirit of survival, spirituality, and oral tradition of this particular culture have influenced what we have become and what we see today as the Hispano-Latino culture. The indigenous, Native American culture has also influenced the Hispano-Latino culture in terms of rituals and ceremonies and "working" collectively. For example, the concepts of community and collective ownership came from indigenous peoples. A family was extended. Love of Mother Earth and Mother Nature and the different arts are symbols of the indigenous culture. The resulting Spanish culture—the dance, the spirit of adventure, the language—is important to Hispano-Latino people. With the loss of language comes a loss of culture. Language is how we express ourselves and communicate with others; it is a key part of who and what we are as a people.

In developing assessments, we must be careful to develop instruments that are linguistically sensitive, particularly if individuals are monolingual. It is important to know whether they come from Central America or South America or whether they are Mexican, for example, because there are different dialects within different languages and different meanings for different words.

There are some key concepts in working with Hispanos-Latinos, especially when working with the family. Traditionally, we have had a large, extended, independent, agrarian-based system. Elderly individuals are venerated. In other cultures, elderly persons often are not accepted or respected for the wisdom they have to give to the community. Different models have been developed in terms of community, which is the extended family beyond bloodlines. Within communities there is also the extended family that is developed by *confianze*, which means trusting, mutual trust, and respect. We must be aware that all these things are important in terms of how assessment instruments are applied across cultural lines.

For Hispanos-Latinos, the term "machismo" represents the concept of being the leader, provider, and protector, not the common image of being drunk all the time— or "macho." We need to take a historical look back to see how these terms developed and where they came from.

Language and acculturation have influenced changing sex roles within the family. Within Hispano-Latino families today, the female has become the focal point, the "rooted" base that has kept the family culturally grounded. Women need to be acknowledged and appreciated for what they have done within our families and households.

Spirituality is another key concept in developing instruments. Catholicism is the spirituality piece of who and what some of us are as a people. How do you incorporate spirituality into the text? Celebration is an important part of who and what we are in terms of our community traditions, including religious traditions. It is important that we look at not only the mental, physical, and emotional piece but also the spiritual piece when we are developing our instruments.

Since 1963 there has been a lack of perception of meaning and significance, purpose, and belonging among individuals in U.S. society. There has been an increase in alcohol, tobacco, and other drug abuse. There has also been increased exposure to negative role models.

Television advertisers are taking a look at how to best get the attention of youth. Advertisers and

researchers have found that if we target that part of our brain where emotional experiences are stored, the responses will be long-lasting and will drive our children to want to purchase and consume a product. An excellent book by David Walsh, called *Selling Out America's Children*, describes what is happening in the world of electronic media and how it influences us and breaks down some of the spirituality that exists within our communities.

Indigenous healing methods include the use of folk medicine and its *remedios* (remedies) and *yerbas* (herbs) and the different ways that we work within our communities in terms of health and health promotion. Some research has indicated that if *promotores*, the natural leaders in our communities, are taught and then conduct assessments and initiate different programs, they are much more effective than a skilled or trained individual from outside the community because they are already trusted and known within the community.

As I mentioned earlier, a key component of the *cultura* or culture of the different Latino peoples throughout the United States, as with the African-American community and the Asian and Pacific Islander community, is spirituality. As we look at a medicine wheel and at what our indigenous brothers and sisters have taught us, we see that to maintain that balance and an effective human element within our communities and within ourselves, we need to use this particular orientation when we are conducting research.

I have a few recommendations in terms of research, policy, and laws within the Hispano-Latino population. The indigenous concept of law is important to consider because it seeks out the honesty to point ourselves in the direction that is the ideal. For example, in Germany they have thousands of traffic laws because they are very precise in what they do, and they also have thousands of accidents. In Italy they have four laws and almost no accidents. Their four laws are, "Keep moving, be creative, don't kill anyone, and stay on the road." If we keep things simple, we get the effect we are looking for.

To that end, we need epidemiological research regarding the health status of the various Hispano-Latino populations. We need to look at the natural support systems within the communities and have some of the research focus on those particular elements that are considered informal in the scientific sense. We need to take a look at the family program and the evaluation that is needed to determine which factors are associated with successful outcomes for culturally diverse populations.

I want to impress upon you again the need to include the whole concept of spirituality. The lack of spirituality is moving this whole country in a way that is destructive, a way in which we see things more materialistically and individualistically. In the indigenous ways of living successfully, materialism and individualism had no place. Instead, successful living was based on answering questions such as, "How can we create a healthy community for all and how can we work with one another and save the lives of our kids?"

Thomas J. Connelly
President
Life Skills Training Curriculum

This is an interesting year in my life. Two very significant things have happened to me. One was that the last of my children have graduated from either college or medical school. Free at last—I actually went out for dinner last night, paid cash, did not pay by credit card, and ate red meat. The second most significant thing that happened to me is that after 31 years in public education, I retired. I am in the process of developing a consulting business to work with school districts around the country. I was going to sit home and watch "Oprah," but I could not do that. So this evening, I leave for Anchorage, AK, to begin some work there.

As I look at these past 30 years, I reflect back on my career in education. Any of you who work in education or know about educators know that we are pretty much "bonded" to our schools. I remember my first year as a principal of a large high school of about 3,000 students in 1983. The staff of the school started coming to my office, saying, "Hey, Connelly, we have some problems here. We are seeing more kids pregnant. We are seeing more kids using drugs. We are seeing more violence in our schools." What they were saying was that they were seeing more aggression, not physical violence. "We need to do something about this," they said.

Not having tenure at the time, I thought it was a good idea for me to go to my school board at a public meeting and inform them of this problem, which we had not formally surveyed. I went to my board of education meeting, and I introduced myself as a principal of one of the high schools. I said, "We have a problem. We need to do something proactively rather than reactively." But it fell on deaf ears, if you know what I mean. So I went back on a second Tuesday night and gave the same spiel. I got a little energetic and started waving my finger, but I don't think they liked that very much. On the third time I went back to my school board meeting, I was reprimanded by the president of the board of education and told that I should not air my "dirty laundry" in public. That began my career, not only in the field of public administration—education administration—but also in the implementation of programs in my district. That Tuesday night I was devastated, and I was convinced that tenure would never come my way. On Thursday night of that same week, the senior-class son of the president of the board of education left school early, went home, turned on Pink Floyd's "The Wall," and blew his brains out after taking LSD.

In my community, as in many of the communities I work in, to have any kind of change—because in education sometimes "change" is a dirty word—you have to have a crisis. Unfortunately, that is what happened in my community. The school board decided that they were going to do something. They posted a position for director of special counseling programs. That position was to do a number of things: oversee all prevention efforts, intervention efforts, and postintervention efforts; develop and supervise alternative schools for kids who were having adjustment problems in regular school programs; train teachers in how to deal with these issues; and reach out to the community, not only to educate the community but also to ask for help.

This was long before the availability of drug-free school money, long before some of those wonderful things that started to happen in the research. When they posted that position, typical to education, there was no funding. So I took that position, and I was doing that for the past 14 years until I retired. Each day of my life working in this area, I dealt with—and I deal with—the issues of this terrible problem.

But I remember my dreams at the time when I first took the position, before I had the research of Gil Botvin, of Hawkins and Catalano, of Emmy Werner. There was a void out there, and I remember that on the first day that the job was posted in the newspapers, one of our board members said, "We don't need that position. All we have to do is bring dogs into our school, and we will solve the problem." I remember having consistently bad dreams that each morning I would get up and go to my large kennel in the backyard and pick the drug dog of the day to go home with me. One night, my dog Scobie fell asleep in the back of my pickup truck and when he stuck his head through the window halfway across the bridge to work, I thought the nightmare had come true.

Part of what I would like to do here today is talk about some of the ways in which we implemented programs in our school district, about what I am beginning to see after spending 30 years in one system, and about what I am beginning to see out there in America—some of the trends and some of the great success stories due to some of the great work done by NIDA and other agencies.

My background is teaching chemistry, so I appreciate the research. I was trained to understand that one of the things you need to do is to base whatever you are doing on the research, and as I began to look up all of the good information, I came across this wonderful program by Gil Botvin. What it said made sense in relationship to the other research that was out there, which is that you can prevent this problem. I would like to give you a sense of how we began to look at this.

After doing an extensive survey, or needs assessment, it was clear that our community had a problem. Many problems that we identified centered around the issues of early first use of gateway drugs, primarily tobacco. Our assumption was that if we could reduce the number of kids using tobacco, we could reduce the number of kids using drugs from that point on. We understood that we had to involve the school, community organizations, parents, law enforcement, students, and community support systems. At that time, the faith communities were, and still are, part of our efforts. It was clear to us that without

those significant players, we could not succeed in what we were intending to do.

Believe it or not, the one area that seemed to be the most difficult to get into this process of prevention was the schools. Over the past 15 years of doing this, it has been a whole lot easier for me—and I can say this as a public educator—to motivate other organizations. My great challenge until the day I retired was getting schools to change. We wanted to develop primary prevention programs, secondary prevention programs, early intervention, late intervention, and aftercare. The core issue was to develop a foundation on which we would build everything else. In education, that foundation was the prevention curriculum, beginning early in kindergarten and going through high school. In some cases now, we are into preschool.

We presented the concept to the school system and to the community in a series of three boxes. In one box were all of the programs labeled as prevention. In the second box were intervention programs, and the third box contained aftercare programs.

The primary prevention program in the prevention box was the Life Skills Training (LST) program at Cornell University. When we started to evaluate the success of that program, we noticed a dramatic change. We had about a 15- to 20-percent higher use of cigarettes and nicotine in our school system than any other school system in New York State. But after the second or third year, when we started our new needs assessment, on average we started to measure a 15- to 18-percent reduction in use of marijuana by students.

Over time, we started to notice students who were moving into our school system who had never had the LST program. Giving them a Justice Department program called "Smart," we began comparing the students who had had the LST program with those who had not had the program. What was the difference? Clearly, we noticed that the kids who had been caught smoking in the schools were kids who did not have the Life Skills Training.

What did we learn? The programs have been successful for 15 years, and we have data that consistently show we have made a difference. We still have some problems, of course, like most communities. It is clear to me as I travel to various communities throughout this country and the rest of the world that there has to be some kind of rationale developed with communities for doing this. I went to Guam about 4 years ago to implement a social skills program there for the Catholic schools, and I found that there were issues that were being ignored. I came up with the concept, which I brought back to my school district, of "Pay me now, or pay me later." The idea is that this problem is not going to go away unless a concept is developed about how to solve it.

To do that, basic components are needed: (1) a rationale for setting up programs; (2) an evaluation and a needs assessment to ascertain the nature of the present problem so that a determination can be made later about whether you have made a difference; (3) implementation, or core programs that embody the results of research; (4) someone to monitor that program; and (5) someone to reevaluate it.

Many communities that have started programs but no longer continue them need to know about the success stories, the data associated with those success stories, and what they need to change to become more successful.

Over the past 15 years, the most difficult part about implementation was convincing the community and my colleagues that this could work. That continues to be the major challenge for me in working in school communities. The challenge is to identify a problem and make people understand that the problem is not going to go away. "Pay me now or pay me later," but you are going to pay for this problem one way or the other.

Another challenge is to set up programs that are based on the research, act as foundations for all other programs, are comprehensive, and work according to the research. An additional challenge is getting someone in a school community—now it is a team approach, but it used to be an individual—to make sure that programs are sustained. Someone is needed to monitor those programs and conduct the evaluations, and someone else is needed to take that information and cause change to happen on an ongoing basis.

As I drove across the bridge leading across the Hudson River going to the school district for my first day 30 years ago, I was lost. I did not know the location of the high school where I was going to teach chemistry. As I drove through my very large school district, I noticed children on street corners with name tags on, with moms and dads out there supporting them on their first day of school. When I observed those kindergartners on their very first day waiting for the school bus, my fantasy at the time was, "Wow! Someday that kid is going to be in my classroom. Someday I might teach that kid chemistry." For about 30 years, the first day of school was a significant one, because I would purposely drive through my community and look at those kids with name tags on.

On the first day of my last year in public education, I spoke to a group of guidance counselors I had hired for one of our high schools. My instruction to those guidance counselors was, "Listen: You need to know that you can't sit in your classroom or office and wait for kids to come to you. You need to be out and about dealing with these issues."

Later I headed toward that high school where two of the new guidance counselors were out there talking with their students rather than waiting in their offices. As I drove toward the high school through the same community in which I had worked for 30 years, two police cars passed me, then an ambulance, and then another ambulance.

When I pulled into the driveway of the high school, all the police cars and ambulances were parked in front of the school. As I walked into the guidance office to greet the two new guidance counselors, I observed them sitting on the couch in shock, because on their first day they had observed a student who had just come into our school district who had dropped acid. The student had gone to the guidance office, pulled out two knives, and stabbed to death one of his classmates.

I said, "On my first day of my first 30 years, my concern was about having enough sodium bicarbonate to do the first workshop and enough test tubes and glassware." Today I think about the challenge to some of the educators with whom I work, what their first day was like, and what their 30 next years are going to be like.

OPEN FORUM AND CLOSING SESSION

Introductory Remarks

Alan I. Leshner, Ph.D.
Director
National Institute on Drug Abuse

This part of our program is one of two tests of whether you have done your homework assignments. Don't be nervous. This meeting is an opportunity for NIDA to hear from the scientific community and obtain help in shaping a research agenda. We want to take advantage of people's experience and try to help bring research into the community. There are five work groups, and much of the purpose of this session is to hear back from these groups.

We also hope that you took your other homework assignment seriously. Please give your comments or your marked copies of the draft manual to the people at the registration desk.

To moderate this session and to set the stage, we are fortunate to have another of the major leaders in the U.S. and international drug abuse and addiction prevention communities. He is difficult to introduce because everybody knows him. So, I have to tell you two stories.

When I first became the NIDA director, I made courtesy visits to all the leaders in the field, including this guy named Copple, who says, "I'm glad to see you because when I came to town somebody referenced some NIDA thing and I said, 'What's a NIDA?'" Copple had only been in the field for 20 years.

I have taken that, "What's a NIDA?" as a personal challenge, and I am hoping that at least the people in this room have figured out "what's a NIDA," who we are in the process, and that we are, in fact, being useful.

The other thing I want to tell you about Jim Copple is that he has been personally responsible for providing tremendous leadership in the development of what is now a gigantic, interconnected network among coalitions in this country. In 1992 the President's Drug Advisory Council declared there should be coalitions and that there should be a mechanism to coordinate the establishment of those coalitions. They are now everywhere, and I think the data are clear that they are tremendously effective.

I also discovered, after meeting this guy, that he has a bachelor of arts degree from Eastern Nazarene College and a master of divinity degree in church history from the Nazarene Theological Seminary. This is trained leadership. I give you one of the leaders of our field, Jim Copple.

How Can Prevention Research Help the Community?

Moderator:
James E. Copple[5]
President
Community Anti-Drug Coalitions of America

It is a pleasure for me to be here, and this, I believe, is an extremely important topic in an important conference.

My 14-year-old daughter, Jessica, is one of the Nation's leading antidrug warriors, and some of

[5]At this printing, Mr. Copple is director of Coalition, State, and Field Services, National Crime Prevention Council.

you have met her at the National Leadership Forum. I talked to her on the phone last night, and she said, "What are you doing tomorrow, Dad?"

I said, "Well, I am speaking at the NIDA conference."

She said, "That is a good organization."

I said, "You know about NIDA?"

And she said, "You forget. Remember second grade?"

And I said, "Oh, I remember second grade."

Jessica had come home from school, and her then 14-year-old sister was sitting at the table. Jessica was in second grade and had just gone through an extensive drug program at school. We were having tacos that night, I remember, because it was one of the only times we drank Coke with our dinner. But Jessica was not drinking Coke; she was drinking water. And Jessica is a nonstop talker. You know how with your children you develop that ability to screen out and sort as they are talking? So we are sitting there at the table, and finally her older sister looks at Jessica and says, "How come you're not drinking Coke?" Jessica says, "That stuff will kill you." I kind of looked at her, but did not pay too much attention to it.

We went about our dinner—this is a scene out of "Father Knows Best." The table was cleaned off, and I go into the living room and sit down to read. As my wife sits down to read, we hear Jessica in the kitchen. We hear all this commotion every once in a while, but we were just kind of screening all this out.

Then we hear, "Oops!" That is one of *those* phrases, so her mother and I got up. We walked into the kitchen, and the kitchen is a mess. There are coffee grounds spread everywhere, and Jessica is standing on this stool with this huge can of Coke pouring it down the sink.

I said, "Jessica, what are you doing?"

She said, "I'm doing an interjection."

"An interjection?" I said.

"Dad, this stuff has caffeine in it. Let me tell you what it will do to your heart, what it will do to your brain." And she starts going through all this stuff.

I ask, "Where did you get this?"

She says, "Let me show you this factsheet," and so she gives me this factsheet given to her by her teacher, and at the bottom it said, "NIDA."

I said, "Well, Jessica, I do not think it is an interjection. I think it is an intervention, but you're messing with my drugs."

Another quick story about Jessica. Some of you have heard me tell this, but it makes a point related to prevention research and community organizing. As a community organizer and having led a local coalition, I only cared about research that could help me do my job and help me be more effective. I cared about research that would help me influence policymakers, help me raise money, and help me make change—some of those real tangible things coalition leaders in this field have to deal with every day.

I am divorced, and Jessica lives with her mother in Baltimore. About 2 years ago when Jessica was 12, we arrive at the designated meeting spot, and Jessica and her mother are in the car crying. Eileen rolls down the car window, looks at me and says, "When are you going to solve the drug problem?" This, too, is my fault, right?

I said, "What are we dealing with here?"

She said, "Well, Jessica spent the night at Stephanie's house last night, and Stephanie offered her marijuana. Stephanie's older sister offered her cocaine."

I said, "You're kidding me! Are you okay, Jessica?"

She said, "Dad, I am so disappointed. I am so upset. Stephanie is one of my closest friends."

I said, "What happened?"

She said, "Well, Stephanie started smoking the marijuana."

We have this phone code system that we use when one of our kids is in crisis. They always say, "I have got to call my parent to ask about Granddad. He is sick." That is the code for "Get your butt over here and pick me up."

Jessica used the code, and Mom picked her up. So I get in the car and say to Jessica, "Jessica, what did you tell her?"

She said, "Well, I told her I didn't want that stuff, and then, Dad, I told her everything you taught me."

I said, "Good. Tell me."

She says, "I told her that marijuana causes short-term memory loss. I told her that the THC content in marijuana is worse today than it ever was in the 1960s. I told her it affects motor skills and coordination. And then, Dad, I told her something else I am not too sure is accurate."

I said, "What is that?"

She said, "I told her it stunts breast growth."

I said, "Jessica, why did you do that?"

She said, "For a 12-year-old, Dad, that is important information." She is a community organizer after my own heart. I do not know if there is any research on this, but we need it. Jessica is out there in the field, and her reputation is on the line; this could be a powerful tool.

Community organizers are desperately in need of research that effects change and that is written and communicated in a way that effects change. That is one of the reasons I am excited about the work NIDA is doing in this conference. Organizations like the National Center for the Advancement of Prevention (NCAP) are capturing research and advancing materials and putting them into the hands of practical people who are working day in and day out.

To me, research must be captured for three things: decisionmaking, responsibility, and control. That is, we need to have the kind of research and data that helps us make programmatic decisions in the field as to what works and what does not in the continuum from prevention education, treatment, and law enforcement, to continuing care. We have to convince local policymakers that our strategies, tactics, and decisions about program choices do work.

I must confess, I never spent a lot of time evaluating whether a particular strategy was going to work until I met the evaluator who was assigned to me by the foundation that was supporting our coalition. I can remember headlines in the news when we had a reduction in our community in marijuana and cocaine use at a time when everything else was going up. When we met with our evaluator, four foundation representatives were there. The evaluator put charts up on the board that were flat in terms of coalition activity and coalition involvement.

I asked him one of the most important questions I had asked in that relationship: "If these charts are so flat, then why am I so tired?" And the founder, the funder of the coalition, and the head of one foundation said, "That is a good question. We see some data that are showing decreases in marijuana and in cocaine—in crack cocaine specifically—and the coalition has put a lot of activities in there." He simply was not capturing it, and we were not reporting it in a way that the two could mix. We need great local intervention research to inform and affect our decisionmaking about what programs we should support.

In the past 18 months as CADCA (Community Anti-Drug Coalitions of America) has taken off, I discovered that I am under siege by curriculum vendors and others who want me to promote their products, but I do not have the foggiest idea whether their products work in the streets. I need help making decisions.

Another issue is responsibility. Many of us are out there responding to one critical incident after another. A coalition leader goes to work and tries to figure out to which direction he or she should bow. As a coalition leader, I knew it was a good day when the chamber of commerce president took me to breakfast and said, "Copple, you are in bed with all those neighborhood groups that have their hands out." That night at a community town meeting, a neighborhood leader stood up and said, "Copple, the problem with you is you are in bed with the chamber of commerce." After I informed my wife that I was sleeping around, I realized that I had all this stress and pressure from these different groups looking for outcomes. We are constantly being put into a position of having to respond, but we need the ability to respond in a way that is thoughtful, provocative, and effective.

In my judgment, the researchers in this room have a responsibility and an opportunity to give us data that allow us to respond in a way that makes sense

in the local community and to express it to us in a way that gives us real data and some real intelligence.

Another issue is control. It is a question of our assuming control of our communities, because, quite frankly, I am weary of national surveys and national data on communities. When I was leading a local coalition, I would be driving to work and listening to National Public Radio. When I would hear that such-and-such organization just released their national data, I would say to myself, "Oh boy, here we go." I would walk into my office, and there would be five calls from the local press asking, "What does this mean? Tell us what this means. Interpret this for us." And I had not even seen the survey.

In the past month, more than 4,000 community coalitions were surprised by the release of three major sets of survey data, and people called our office asking for help and interpretation. Data must be sent to the communities so that the communities can respond and react meaningfully. If it is about promoting stories and organizations, we can help you do that. We can extend the story 2 or 3 days. Many community activists are not as stupid as we sometimes think we are. We can figure this stuff out, and we even have universities in our local communities who can help us figure it out. We have evaluators who can help us figure it out.

Send these data to us in a way that we can extend the story and tell it in a meaningful way in the local community, because my mayor does not care about national data. He cares about Wichita, KS. When I stand in front of a local policymaker, he or she wants to know what it means for Wichita, and that is when I need the capability, tools, and guidance of organizations like NIDA, NCAP, CSAP, and others. I need tools to help me to do that local storytelling in a way that documents and presents real, live community change.

Thank you for the invitation to be here, and Jessica also thanks her "good" organization. And if we ever get the data on breast growth and marijuana, we will have a hit.

I must underscore that I am impressed that this conference is happening and that there is a commitment to make prevention research real for communities. That means a lot to those of us who have worked in communities and are working in community collaboration, because you are providing tools that will help us make local policy and program changes. I think in the long run it will be effective.

Work Group Reports

Work Group on Risk and Protective Factors

Robert J. Pandina, Ph.D., Reporter

The remarks that came out of our work group are summarized in seven points that fit nicely with themes that have been articulated this morning. These points are not listed in order of priorities, but in order of how and when they came up in the conversation.

First, there is a desire and a need for behavioral engineers to help translate and adapt current prevention models to the many diverse potential prevention venues. The real challenge presented in our group was whether the building blocks derived from what I am going to term the "prototype models" that we have built over the last decade can be extended to all segments and settings of those in need of prevention activities.

Second, we need to determine if other viable models exist. That is, are there important approaches that have evolved from a grassroots community level that could be viable in dealing with the vast prevention needs in the country? We need to characterize and evaluate these; there was a need on the part of the people who were developing these grassroots models to have them evaluated and characterized.

It also came out of our discussion that we may have to adapt the evaluation paradigms that we currently use to try to capture these models and test their viability in a way that we are not currently equipped to do. This may require new evaluation tools to give these new models a fair test and evaluation.

Point number three speaks directly to an issue that Mr. Copple raised this morning. There is an apparent gap in communication between the prototype model developers and all levels of consumers, whether they be communities, States, or local organizations. There is a need to somehow close this communication gap to bring us together. I thought that the remarks of Dr. Johnson this morning were on point with regard to that issue. There appears to be an evolving national network that would permit a catalysis of this closing of the gap among the various segments of prevention-concerned communities. It will be interesting to see whether there is a way we can catalyze the closing of this gap through NIDA and other organizations and individuals that are sponsors and participants in this conference.

The fourth point is a perceived need for greater organization, coordination, and assistance in interpretation of the data provided by diverse information sources, particularly about the nature and extent of risk and protective factors, the nature of the problems, and the nature of the solutions and their applicability across the broad venues in which prevention programs occur. This includes a dissemination of evaluation results, and I think this is right on target with what you have asked for in your remarks to us.

Fifth, there is a need to develop an ongoing process, possibly [a new] organization or utilizing established organizations, to directly link research and researchers to potential consumers at all levels—local units, community alliances, school-based programs, concerned politicians, and others. Again, we need some way to catalyze this process of communication. It seems that the building blocks are all in place. They are all rubbing up against each other, but the neural growth has not occurred yet.

Sixth, there is a need to provide systematic technical assistance to extend prevention evaluation—not just prevention programs but prevention evaluations—to all venues in which prevention programs occur. A point was made, likely a valid point, that many local programs have short-term funding and that it is almost impossible within the confines of such funding to get a program up and functioning, let alone to conduct a meaningful evaluation. There is a real need perceived by the individuals conducting the program—not the scientists, not the evaluators, but people conducting the program—for a way to evaluate and demonstrate the efficacy or, candidly, the inadequacy, of the programs that were delivered, so that the programs can be improved and disseminated at the local level.

The seventh and last point on which the group had some consensus was the need to better specify the distinctions within risk factor models, particularly the need to characterize protective and resilience factors and processes. We need to better specify what these factors are and to provide a clear understanding of them for the individuals who have to make use of these factors. This includes the differences between markers and mediators and how they work as processes, with particular emphasis on identifying the nature of the resilience process. This also ties in with some of Dr. Leshner's remarks about the need to emphasize protection and what things may inoculate communities or individuals or settings.

Work Group on Critical Factors for Prevention Success

William B. Hansen, Ph.D., Reporter

Our work group developed a "top 10" list of critical factors and recommendations for prevention success:

- Recommendation Number 10: Moving from science to practice remains a challenge. There is a need for continuing training, education, and communication.
- Recommendation Number 9: Oregon has mandated prevention services as part of its managed care contracts. I think that is a point worth noting.
- Recommendation Number 8: I want to quote this as closely as I can. "There are data, and then there are data." Evaluation must start with meaningful activities where information is truly useful.
- Recommendation Number 7: Involving youth in community service is a naturally available alternative that is protective and creates a natural high.
- Recommendation Number 6: Some communities are just not ready for prevention; however, they will take money for prevention, even if they do not do anything with it. We need to do research on how to promote community readiness. There are some communities that are in denial, and there are some communities where drug abuse does not even enter the radar screen.
- Recommendation Number 5: This is duplicative, but if you can hear it enough times then maybe you can catch this: Local community research needs funding. It has no funding. It has to be a high priority. It involves getting things from selected sites down to local sites where local decisionmakers can actually make decisions.
- Recommendation Number 4: Being data-driven does not necessarily mean ignoring theory or intuition, and it does not mean being atheoretical or being counterintuitive. Both theory and intuition are needed with the data.
- Recommendation Number 3: Logic models can help guide policy and evaluation. There was an after-session meeting that crystallized this [idea] that people in my earlier session might not have caught. Science can tell us a great deal about prevention. What if we have not done evaluations yet? Can science still help us evaluate the things that we have done, things that we are proposing to do? Yes, it can. Logic models are embodied in many of the things that Elaine Johnson talks about and a lot of the work that community partnerships and coalitions have been trained to do. This involves listing things that are equivalent to risk and protective factors and then seeing how the programs that we are addressing

match up with that list. This can be a valuable tool for communities to use.

- Recommendation Number 2: Not everything we do should be evaluated. Somebody said that. It stuck in my head, so I thought I would report it.
- Recommendation Number 1: When considering a response to rising inhalant use, we need to focus on education rather than legislation. Also, legalizing marijuana would send the wrong message to youth and would interfere with education.

Work Group on Prevention Through the Schools

Gilbert J. Botvin, Ph.D., Reporter

Our work group felt it was important that prevention be science based, and I wanted to underscore the importance of using the appropriate prevention methods and appropriate teaching methods for implementing prevention programs in the schools.

Group members also wanted to emphasize the importance of using a consistent prevention message, multiple prevention channels, multiple modalities, and multicomponent approaches. They felt that, although there had been a great deal of emphasis on school-based interventions, even school-based interventions must consider the parents and must foster more parental involvement. There were some concerns raised in our group about how to handle kids from dysfunctional families, especially from families where either one or both parents may be drug users themselves, or from families where the parents may be 16-, 17-, or 18-year-olds.

Work group members discussed the need to foster the involvement of other stakeholders in the community and to reach out to community leaders, parents, and other organizations that can help support the effort of the overall community.

They also want to emphasize the inadequacy of a "sloganish" approach to prevention and the simplicity that is conveyed in slogans like, "Just Say No," or the most recent slogan, "Just Don't Do It." That is not enough; we have to take into account the whole child.

The work group also discussed the need to think seriously about the role of peer socialization, taking into account psychological factors and issues related to normal child and adolescent development, so that we foster the healthiest and most successful children that we can produce.

There is the need to move away from negative language, such as military metaphors like the "war on drugs," and to move toward a more positive, growth-enhancing approach and a more positive, growth-enhancing message with respect to prevention.

Although we talked about wonderful prevention programs, including the Life Skills Training that I talked about yesterday, work group members expressed a good deal of concern that there are significant barriers not being addressed. Issues of training and implementation fidelity can be addressed fairly readily, but there are other barriers that are more formidable, such as the adequacy of funding for prevention programming on a local level. Work group members expressed concern about curriculum time requirements and how to do interventions that must take up a substantial amount of time if they are to be effective. Concerns were raised about how to reconcile that with pressure to achieve academic goals and improve academic standards.

There was a consensus about the importance of, and a tremendous thirst for, information about proven approaches that can help give people a sense that they are on the right track, and that they are doing the right thing. This can help to reenergize community prevention efforts that are being done more and more with fewer people and with fewer resources.

Finally, there was a concern that, although there have been advances in working with minority populations, we need a better understanding of the needs of minority kids, the kinds of prevention approaches that can be effectively used with these populations, and ways to tailor those approaches so they satisfy community needs.

After summarizing those general concerns and issues, as was our charge, we came up with some recommendations, which are not presented in priority order:

- There was a feeling that prevention has to have a different posture and has to ascend more to the national agenda, not just in terms of all of the negative statistics. Drug abuse prevention must be a national priority on the same level as national immunization. It has to be something that occurs for all kids all over the country and is taken seriously. Drug abuse prevention has to be funded. There must be a consistent and sustained effort to do the most effective prevention programs in communities around the country. This interest in prevention on the part of the general public and on the part of the media must not rise and fall from day to day, becoming a "hot issue" only during this political season. It must outlast the political season, and we must move with sustained effort.
- A national effort has to involve cooperation of relevant Federal agencies, and there was a great deal of concern over the lack of interagency cooperation. We have several agencies represented here, but there was concern expressed that the Department of Education is not here and that a lot of Government agencies have a stake in drug abuse prevention but are not working with the necessary collaboration. Some effort is needed to pull together Federal agencies and perhaps to form a coalition among agencies such as NIDA, the Department of Education, CDC, CSAP, and even the Department of Defense to work together in a coordinated way with the same mission, singing the same song, and marching to the same beat. This may be an impossible task, but it is something that we should strive for nonetheless.
- Going beyond this conference, there has to be an intensive effort to disseminate information about what works, including such ideas as regional seminars around the country. Our group felt that it was necessary to "take the show on the road" with workshops to provide training and some mechanism for providing technical assistance. Members recommended collaboration with national coalitions and national organizations in the area of prevention and education.
- There was great concern about the need for a funding mechanism to make training and prevention materials available and the need to give schools financial incentives to use the right programs. Unfortunately, many people felt that, left to their own devices, some schools might have a somewhat venal tendency to use available money to plug holes in their own budgets rather than to implement the most effective and proven drug use prevention approaches. It was suggested that this could be averted—and there may be hisses in the group—by reallocating some of the money from the Safe and Drug-Free Schools budget to help support proven prevention approaches.
- Our work group recommended a formal collaboration between the Department of Health and Human Services and the Department of Education, modeled after a program called the School-to-Work Opportunities Act, which provides a mechanism for financing and delivering high-quality programs to schools in that arena. It was suggested that a similar kind of program could be developed on a Federal level to deliver high-quality drug use prevention programs to schools around the country.
- There must be a development of national prevention standards, again to increase accountability on a local level and to ensure that people are using the most effective prevention approaches. There is also a corresponding need for some standard evaluation tools that communities can use, rather than all relying on major NIDA-funded studies. Some folks felt that they could do a lot on their own local level, and they want to have the ability to evaluate the many worthwhile things that they are doing. However, it was also acknowledged that there is already much duplication among the State and local surveys that are being done by a variety of groups around the country. There has to be some way of coordinating all of these to get the kind of data that individuals need that can serve as a barometer for how their community is doing rather than conducting yet another survey that could easily be included in an ongoing survey.

- Finally, there was a suggestion for considerably more money for research.

Overall, the work group wanted to commend NIDA for putting together an excellent conference to help communities and schools use the best science-based prevention approaches. The group members voiced hope that this conference would not be a single event but, rather, would become part of a major, sustained effort to disseminate effective, user-friendly, research-based, prevention approaches that can be easily utilized by communities throughout the country. They also expressed hope that we would see changes in the way in which prevention is done and the way in which prevention is currently funded.

Work Group on Prevention Through the Community

Mary Ann Pentz, Ph.D., Reporter

With respect to general comments for success, the first point from our work group was the idea of the comprehensive, community, multicomponent approaches that we talked about yesterday. Surprising to me, there was consensus also about the utility of research. I can remember in the not-so-recent past when community coalitions said, "It is just a pain in the neck. Can't we just go on with our work and not evaluate our efforts?" I don't hear that anymore. There is an understanding of the need to use research as a tool, primarily for accountability for what you are doing and as a stepping stone for future funds.

What was interesting about this acknowledgment of the need for comprehensive community intervention were the group's ideas about how to extrapolate it to other things besides multicomponents. One of these was adding age groups, using a multigenerational program, not all at the same time. One example came from Gloucester. There is a lot of attention paid to Little League players, but when those Little League players get older, there is nothing for them. A lot of them are latchkey children, and they have a lot of time on their hands. The point was to look at different stages or age groups and develop prevention programs for them.

Another recommendation was to interpret comprehensive community intervention as contextual programming. It was the idea of taking the systems that are already in place and for which a community already has a budget—recreation, waste removal, transportation, local ordinances, schools—and fashioning prevention programs for each of those existing systems. This involves talking to each of those systems to get at least part of their budgets invested in prevention programming. I don't think we have done this before.

The group also discussed adding worksites, both as a future research area and as a means to get at adult behaviors. This includes worksite prevention programs aimed at those who have just passed through adolescence, young adults, and adults who have young adolescent children.

Another point was the need for a multicultural focus, and there was some discussion about how to do this with limited funds. There were several communities represented in our group that already have several coalitions that can deal with prevention issues. It was suggested that each could target a different cultural issue. The coalition should have collaborative efforts with ongoing agencies rather than turf battles, and the coalition in a community in which a program is run should recognize it as their own program. Failures and successes were mentioned with respect to outsiders coming in and not becoming part of the program in the community. Therefore, the program should be based on the community's acknowledging that it was their decision to adopt a program and to tailor it to the community if need be.

The work group offered general comments pertaining to the role of the researcher. In the community-based work, when researchers are used, they are used as evaluators. However, there are other roles for a researcher, the first being an organizational consultant to communities, especially during the needs assessment process. Another role is that of an information broker about drug use, etiology, epidemiology, and principles that work in prevention, and providing that

information to communities. Still another role is that of evaluator.

The work group explored the question of how to sustain an effort by community coalitions over the long term. A first suggestion was moving the interventions from context to context. A second is building in a plan to rotate community coalition personnel at the $2^1/_2$-year point to prevent burnout. The third suggestion was having the coalition and community representatives vote on whether the community should move after about a 3-year period from a specific drug use focus to other problem behaviors that are related to drug use, so that problem behaviors, like violence, become more or less salient without loss of the drug use focus. The fourth suggestion was the notion of reinvention, which basically means tailoring a program over time by restructuring it slightly, making corrections, and fine-tuning it like you would a car. It also involves acknowledging the people who are involved in the fine-tuning to provide reinforcement and encouragement to continue their efforts.

We also dealt with the problem of adults and changing their behavior, since they are models for children. The first suggestion was that, because it is difficult to change adult behavior in Western society, we send children's messages home through prevention programs and exert positive pressure on parents through the child, particularly through homework activities.

A second suggestion was a model used in inner-city Detroit, where using positive child pressure is a rather threatening occurrence. The model involved getting adults, especially those in housing projects, to make a public commitment at the same time that children make a public commitment as part of a school program. The designated adult who makes the commitment may or may not be a parent. A third example was, again, using worksite prevention programs to address adult behaviors.

The work group also discussed how to regenerate community interest in drug abuse prevention. This involved the issue of readiness and an acknowledgment that we may no longer have many communities at the point of readiness for drug use prevention. We have had several years of that. The question is whether we can regenerate or regear to make drug use prevention a focus. The discussion revolved around conducting a needs assessment now and strategically using mass media.

Another issue the group discussed was how to enact policy changes at the community level. We did not have an answer for how to deal with big legislative hammers like the tobacco industry, and it is probably beyond the scope of the discussion here. But there was an acknowledgment that the way to change local policy is to use prevention programs in the mass media to start changing perceived social norms. In this way, you build up a norm for the unacceptability of drug use, and it becomes easier to change local policy at some point.

The work group also discussed turf battles among coalitions and agencies. Group members recommended the use of prominent, credible business leaders who can help remove the issue from a health agency domain. They also suggested minimizing the use of politicians unless there is a cohesive community council that will be behind prevention for a long time.

We discussed how to generate long-term funding, and this included charging schools a minimum of $2 to $3 per student, which is paid into a fund for delivery of prevention programs each year. This would also involve bringing businesses into coalitions but not systematically approaching them for donations each year.

Finally, in regard to directions for research, there was a recommendation for more research on predictors of effective coalitions and on the effects of coalitions on drug use changes. The research would involve building more in the way of doctoral and postdoctoral training programs for researchers in prevention.

Work Group on Prevention Through the Family

Thomas J. Dishion, Ph.D., Reporter

Our work group focused our comments on three areas: parent involvement and barriers, bridging the gap between research at NIDA and implementation in the community, and future directions.

A representative of the National PTA was involved in our work group and pointed out that PTAs have noticed that parent involvement has been decreasing over the past 10 years. We need to be mindful and conscious of a significant barrier to prevention programs that aim at parents, and that there may be some structural constraints to parent involvement, such as parents' work schedules, that are significant barriers. Other barriers to parent involvement may be a sense of hopelessness, including subtle and not-so-subtle messages that parents cannot affect some of the problems in drug use and other problem behaviors that are prevalent today.

Another barrier may be the time and the type of demands we make on parents in our prevention programs. The 16-session, 2-hour-a-week parent groups are demanding and unrealistic for many parents, despite their good intentions.

How might we get beyond these barriers with some positive solutions? The work group suggested that we limit the demands and time needed for interventions, be more focused, be briefer, and be more relevant as much as possible.

It was suggested that we need more of a paradigm shift, that parents need to be involved at the policymaking level or at a level where we would have more parents attending meetings such as this one. Parents need to be included not only in the solution but also in [articulating] the problem.

Another possible approach to increasing parent involvement is to "pitch" this problem more as a child-centered health issue and less as a drug use or violence issue.

Most people did not select their prevention programs on the basis of research for several reasons. First, research-based programs are expensive for most local implementers to utilize. Also, consumers often have trouble separating the passion of the research group from the usefulness of the program. Another issue was that many other political, personal, intuitive, and State funding factors take priority. For example, State funding may be extremely important in determining which strategy a community uses.

Another barrier cited was the lack of information on details of implementation. It was suggested that a person or group at NIDA serve as a nexus between the research-based program developers and the community implementers, and that person or group would conduct the workshops. The workshops would be specific and focus on training skills related to program implementation. There are many specific skills that groups have learned about getting parents involved that are often unreported and not taught; these would be included as part of the workshop or dissemination effort. We also could help disseminate the science by clarifying for the community implementers the relationship between groups like CSAP and NIDA and other State block funding sources. Many communities do not know who to go to for their various needs.

Another possible solution would be to develop a regular newsletter that provides concrete information or principles relevant to targeting parents or adults in intervention practices. NIDA does publish such a newsletter [*NIDA NOTES*] that is extremely helpful to researchers. The work group suggested another newsletter, pitched to the program implementer, that lays out principles more concretely. In this way, NIDA could help guide States in developing an infrastructure or framework for selecting prevention programs. This might be especially relevant to State block funding systems.

With respect to future direction in research, the work group discussed ideas about areas of research that would be particularly interesting and helpful to the program implementer. One key area would be pure research on program implementation. We need more research on early intervention; many of the programs are aimed at childhood and adolescence. In addition, we need to better understand the effects of poverty on the basic family processes that we are targeting and also the effects of poverty and its disadvantages related to implementation of prevention programs. We need research on the use of participant education and participant workers in prevention, especially prevention programs directed to families.

Another question of research interest is the impact of mandating parenting interventions. Members of the work group were concerned about working with children whose parent or parents are drug users themselves. What is the best way

to approach getting their involvement? Is it mandated? Do we use incentives? It would be useful to research and answer this question.

We also addressed the issue of "affluent neglect." There is a generation of children being raised in families where both parents are working. It is not an issue of poverty, but an issue of neglect, and drug use is certainly relevant in those settings. We need to better understand the dynamics and provide prevention resources there as well.

Closing Remarks

Alan I. Leshner, Ph.D.
Director
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The work group reports have generated some noteworthy suggestions, one of which is the need for local algorithms, an issue that is also relevant to the treatment of drug abuse. NIDA will be studying this issue because we are frequently asked to provide not only mechanisms for determining local epidemiology but also mechanisms and approaches—algorithms—for conducting evaluations of the impact of local drug use prevention programs.

The issue of the fox watching the chicken coop notwithstanding, it is possible for a local project to evaluate its program's effectiveness, perhaps using different evaluation mechanisms. One does not have to be an economist to do an economic analysis; that is, there are reproducible formulae and algorithms that can help, not by turning it into a research project, but by providing useful, credible information. Therefore, NIDA will begin working on ways to provide the tools to do that. I do not know in detail what that means, but I hear the need, and we will work on that.

I was struck by the comment that "there are data and there are data," and I would remind you all that if we abuse the data, we lose our credibility.

Another comment I was struck by feels similar, and that is, "There is talking and there is talking." The emerging theme about the coalitions is important. They are not just "talking"; they are doing things together and trying to find a single song to sing. Unless we do that, we are in very deep trouble.

I think we all agree that we are making tremendous progress. Without pointing out a particular place or a particular program, I was in a large city in the South with palm trees recently to attend a meeting of a well-known coalition. I was astounded, first of all, at the high level of people involved in it, and second, at the unanimity of what various groups were saying—the police, the Justice Department, the jailers, and the prevention and treatment providers. It was an overall policy thrust and policy message, and that is what we have to do. This conference marks a step in research that NIDA has been doing for many years, and I hope this conference is a major step in a direction that will continue.

There is no point in doing research unless it is going to be used. The era of knowledge for the sake of knowledge ended decades ago. Because I was trained that knowledge for knowledge's sake was good, I gave a talk one year at a meeting of the American Association for the Advancement of Science, an elegant talk about changing trends in the philosophy of supporting science, from the very controlled, planned science of putting a man on the moon, all the way to letting a thousand flowers bloom. And they let the thousand flowers bloom, right? It was the good old days, and everything had to be mission-focused. An older-looking man raised his hand and said, "Don't get your hopes up. I was President Eisenhower's science adviser. He wanted to put a man on the moon, too."

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